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OF

THE CLINICAL SOCIETY.

VOL. V.

LONDON: PRINTED BY
SPOTTISWOODE AND CO., NEW-STREET SQUARE
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VOLUME ~~THE~~ FIFTH.

LONDON:
LONGMANS, GREEN, AND CO.
1872.

NOTICE.

THE present Volume comprises the Proceedings of the Society during its Fifth Session, October 1871 to May 1872.

The Council think it proper to state that the authors of the several communications are alone responsible for the statements, reasonings, and opinions contained in their respective papers.

August 1872.

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PRESIDENTS OF THE SOCIETY.

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1867 Sir THOMAS WATSON, Bart., M.D., F.R.S., D.C.L.

1869 Sir JAMES PAGET, Bart., F.R.S., D.C.L.

1871 Sir WILLIAM GULL, Bart., M.D., F.R.S., D.C.L.

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(V.P.) *Vice-President.* (S.) *Secretary.*
(C.) *Member of Council.*

Non-Resident Members are marked thus (*).

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Orig Memb *ACLAND, HENRY WENTWORTH, M.D., F.R.S., LL.D. Honorary Physician to H.R.H. the Prince of Wales; Physician to the Radcliffe Infirmary, and Regius Professor of Medicine in the University of Oxford. (V.P. 1868–70.)

1868 ADAMS, WILLIAM, Surgeon to the Royal Orthopædic and Great Northern Hospitals: 5 Henrietta Street, Cavendish Square.

1870 *ALLBUTT, THOMAS CLIFFORD, M.D., F.L.S., Lecturer on the Practice of Physic at the Leeds School of Medicine, and Physician to the Leeds General Infirmary: 38 Park Square, Leeds.

1871 ALTHAUS, JULIUS, M.D.: 18 Bryanston Street, Portman Square.

1868 ANDERSON, JOHN FORD, M.D.: 28 Buckland Crescent, Belsize Park.

Orig Memb ANDREW, JAMES, M.D. (C.), Physician to, and Lecturer on Medicine at, St. Bartholomew's Hospital; Physician to the City of London Hospital for Diseases of the Chest: 22 Harley Street, Cavendish Square. (C. 1872.)

Orig Memb ANSTIE, FRANCIS EDMUND, M.D., Senior Assistant Physician to, and Lecturer on Materia Medica at, the Westminster Hospital: 16 Wimpole Street. (C. 1867–9.)

Orig Memb ARNOTT, HENRY (C.), Assistant Surgeon to St. Thomas's Hospital: 6 Nottingham Place. (C. 1872.)

1868 BAÜMLER, CHRISTIAN G. H., M.D., Assistant Physician to the German Hospital, and to the Hospital for Diseases of the Chest, Victoria Park: 10 Finsbury Place North.

ELECTED

Orig Memb BAKER, W. MORRANT, Casualty Surgeon and Lecturer on Physiology and General Anatomy, and Warden of the College, St. Bartholomew's Hospital.

1868 BANTOCK, GEORGE GRANVILLE, M.D.: 44 Cornwall Road, Westbourne Park.

Orig Memb BARCLAY, ANDREW WHYTE, M.D., Physician to, and Lecturer on Medicine at, St. George's Hospital; Medical Officer of Health for Chelsea: 23A Bruton Street, Berkeley Square. (C. 1870–1.)

1869 BARKER, EDGAR: 21 Upper Hyde Park Street.

Orig Memb BARWELL, RICHARD (C.), Surgeon to, and Lecturer on Descriptive and Surgical Anatomy at, the Charing Cross Hospital: 32 George Street, Hanover Square. (C. 1872.)

Orig Memb BASHAM, WILLIAM RICHARD, M.D., Senior Physician to, and Lecturer on Medicine at, the Westminster Hospital: 17 Chester Street, Grosvenor Place.

Orig Memb BASTIAN, HENRY CHARLTON, M.D., F.R.S., Physician to University College Hospital, and Assistant Physician to the National Hospital for the Paralysed and Epileptic, and Professor of Pathological Anatomy at University College: 20 Queen Anne Street.

Orig Memb BEALE, LIONEL SMITH, M.B., F.R.S., Professor of Pathological Anatomy at King's College and Physician to King's College Hospital: 61 Grosvenor Street.

1868 BEIGEL, HERMANN, M.D., Physician to the Metropolitan Free Hospital and the Farringdon Dispensary: 39 Queen's Road, Brownswood Park, N.

1871 BENNETT, JAMES RISDON, M.D., Consulting Physician to St. Thomas's Hospital, and to the City of London Hospital for Diseases of the Chest: 15 Finsbury Square.

Orig Memb BIRD, FREDERIC, M.D., Obstetric Physician to, and Lecturer on Midwifery and Diseases of Women at, the Westminster Hospital: 13 Grosvenor Street.

1870 BLOXAM, JOHN ASTLEY, Surgical Registrar to St. Bartholomew's Hospital, 8 George Street, Hanover Square.

1868 BRACE, WILLIAM H., M.D.: 7 Queen's Gate Terrace, Kensington.

1868 *BRIGHT, JOHN MEABURN, M.D.: Forest Hill.

1868 *BRIGHT, GEORGE CHARLES, M.B., Physician to St. George's and St. James's Dispensary, and Lecturer on Comparative Anatomy at St. George's Hospital, Dresden.

Orig Memb BRISTOWE, JOHN S., M.D., Physician to, and Lecturer on Physiology at, St. Thomas's Hospital; Medical Officer of Health for Camberwell: 11 Old Burlington Street. (C. 1869–70.)

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Orig Memb BROADBENT, WILLIAM HENRY, M.D. (C.), Senior Assistant Physician to, and Lecturer on Physiology at, St. Mary's Hospital; Physician to the London Fever Hospital: 44 Seymour Street, Portman Square. (C. 1871–2.)

Orig Memb BRODHURST, BERNARD EDWARD, Orthopædic Surgeon to St. George's Hospital, and Assistant Surgeon to the Royal Orthopædic Hospital: 20 Grosvenor Street.

1868 BROWN, ALFRED GARDINER: 63 Trinity Square, Southwark.

Orig Memb BRYANT, THOMAS (C.), Surgeon to, and Demonstrator of Operative Surgery at, Guy's Hospital: 2 Finsbury Square. (C. 1872.)

Orig Memb BUCHANAN, GEORGE, M.D., Medical Inspector to H.M. Privy Council: 24 Nottingham Place.

1868 *BURTON, JOHN M.: Lee Park, Blackheath.

1871 BUTT, WILLIAM F.: 12 South Street, Park Lane.

Orig Memb BUZZARD, THOMAS, M.D. (*Hon. Secretary*), Physician to the National Hospital for the Paralysed and Epileptic: 56 Grosvenor Street. (S. 1870–2.)

Orig Memb CALLENDER, GEORGE WILLIAM, F.R.S. (V.P.), Surgeon to, and Lecturer on Surgical Anatomy at, St. Bartholomew's Hospital: 47 Queen Anne Street, Cavendish Square. (S. 1867–70, C. 1871, V.P. 1872.)

1868 *CARR, WILLIAM, M.D.: Lee Grove, Blackheath.

1869 CARTER, ROBERT BRUDENELL, Ophthalmic Surgeon to, and Lecturer on Ophthalmology at, St. George's Hospital; Surgeon to the Royal South London Ophthalmic Hospital: 69 Wimpole Street.

1870 *CASSON, JOHN HORNSEY: Ashbourne, Derbyshire.

1868 CAVAFY, JOHN, M.D., Medical Registrar and Lecturer on Comparative Anatomy at St. George's Hospital: 13 Arlington Street, Piccadilly.

Orig Memb CAYLEY, WILLIAM, M.D., Assistant Physician to, and Lecturer on Pathological Anatomy at, the Middlesex Hospital: 58 Welbeck Street.

Orig Memb CHAMBERS, THOMAS KING, M.D. (V.P.), Honorary Physician to H.R.H. the Prince of Wales; Consulting Physician to, and Lecturer on Medicine at, St. Mary's Hospital: 64 Brook Street. (V.P. 1870–2.)

1868 CHOLMELEY, WILLIAM, M.D. (C.), Physician to the Great Northern Hospital, and Margaret Street Infirmary for Consumption: 63 Grosvenor Street. (C. 1871–2.)

Orig Memb CHURCH, WILLIAM SELBY, M.D., Assistant Physician to, and Lecturer on Comparative Anatomy at, St. Bartholomew's Hospital; late Lee's Reader in Anatomy, Christ Church, Oxford: 2 Upper George Street, Bryanston Square.

Elected	
Orig Memb	Clapton, Edward, M.D. (C.), Physician to, and Lecturer on Materia Medica at, St. Thomas's Hospital: 10a St. Thomas's Street, Southwark. (C. 1872.)
Orig Memb	Clark, Andrew, M.D., Physician to, and Lecturer on Medicine at, the London Hospital: 16 Cavendish Square.
1868	Clarke, Jacob Lockhart, M.D., F.R.S.: 64 Harley Street, Cavendish Square.
1868	Clover, Joseph Thomas: 3 Cavendish Place, Cavendish Square.
1868	*Cooper, Frank W.: Leytonstone, Essex.
1872	Cooke, Thomas, Assistant Surgeon to the Westminster Hospital: 30 Gower Street, Bedford Square.
Orig Memb	Coote, Holmes, Surgeon to, and Lecturer on Surgery at, St. Bartholomew's Hospital: 52 Margaret Street, Regent Street.
Orig Memb	Couper, John, Surgeon to the London Hospital and Assistant Surgeon to the Royal London Ophthalmic Hospital: 80 Grosvenor Street.
Orig Memb	Croft, John (C.), Surgeon to St. Thomas's Hospital: 61 Brook Street, Grosvenor Square. (C. 1870–2.)
1868	Crucknell, Henry H., M.B., Physician to the Great Northern Hospital and to the Royal Infirmary for Diseases of the Chest, City Road: 58 Welbeck Street.
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1868	Day, William Henry, M.D., Physician to the Samaritan Free Hospital for Women and Children: 10 Manchester Square.
1872	*De Castro, James Cato, M.B.: Pau, France.
Orig Memb	De Morgan, Campbell, F.R.S. (V.P.), Senior Surgeon to, and Lecturer on Surgery at, the Middlesex Hospital: 29 Seymour Street, Portman Square. (C. 1867–9, V.P. 1871–2.)
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Orig Memb DOWN, JOHN LANGDON H., M.D. (C.), Physician to, and Lecturer on Materia Medica and Therapeutics at, the London Hospital: 39 Welbeck Street. (C. 1870–2.)

1868 *DRAGE, CHARLES, M.D.: Hatfield, Herts.

Orig Memb DUCKWORTH, DYCE, M.D., Assistant Physician to St. Bartholomew's Hospital: 11 Grafton Street, Bond Street.

Orig Memb DUFFIN, ALFRED B., M.D. (C.), Assistant Physician to King's College Hospital: 18 Devonshire Street, Portland Place. (C. 1872.)

1869 *DUKE, OLLIVER THOMAS, Assistant Surgeon, 3rd Bengal N.I., India.

Orig Memb DURHAM, ARTHUR EDWARD, Assistant Surgeon to, and Lecturer on Anatomy at, Guy's Hospital: 82 Brook Street. (C. 1867-9.)

Orig Memb EDIS, ARTHUR W., M.D., Assistant Physician to the Hospital for Women: 23 Sackville Street.

Orig Memb ERICHSEN, JOHN E., Examiner in Surgery at the University of London; Holme Professor of Clinical Surgery in University College, and Senior Surgeon to University College Hospital: 6 Cavendish Place, Cavendish Square. (V.P. 1869–71.)

1868 EVANS, JULIAN, M.B.: 123 Finborough Road, Redclyffe Square, S.W.

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1868 *FAIRBANK, FREDERICK ROYSTON, M.D.: Lynton, Devon.

1868 *FALCONER, RANDLE WILBRAHAM, M.D, Physician to the Royal United and Mineral Water Hospitals, Bath.

Orig Memb FERGUSSON, Sir WILLIAM, Bart., F.R.S., Sergeant-Surgeon to H.M. the Queen; Surgeon to King's College Hospital: 16 George Street, Hanover Square. (V.P. 1867–70.)

1868 FISH, JOHN CROCKETT, M.B.: Physician to the Royal Hospital for Diseases of the Chest, City Road: 92 Wimpole Street, Cavendish Square. (C. 1869-70.)

Orig Memb FORSTER, JOHN COOPER (V.P.), Surgeon to, and Lecturer on Surgery at, Guy's Hospital: 29 Upper Grosvenor Street. (C. 1869–70, V.P. 1872.)

Orig Memb FOX, WILSON, M.D., Physician Extraordinary to H.M. the Queen; Holme Professor of Clinical Medicine in University College, and Physician to University College Hospital: 67 Grosvenor Street.

1872 FOX, W. TILBURY, M.D., Physician to the Skin Department of University College Hospital: 14 Harley Street.

Elected	
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1868	Gant, Frederick James, Surgeon to the Royal Free Hospital: 16 Connaught Square.
Orig Memb	Gascoyen, George Green, Surgeon to the Lock Hospital; Assistant Surgeon to, and Lecturer on Anatomy at, St. Mary's Hospital: 48 Queen Anne Street. (C. 1869–71.)
1868	Gee, Samuel Jones, M.D., Assistant Physician to, and Demonstrator of Morbid Anatomy at, St. Bartholomew's Hospital, and Assistant Physician to the Hospital for Sick Children: 54 Harley Street.
1868	Glover, James Grey, M.D., Surgeon to the Holloway and North Islington Dispensary: 33 Compton Terrace, Islington.
Orig Memb	Goodfellow, Stephen Jennings, M.D., Consulting Physician to the Middlesex Hospital: 5 Savile Row.
1869	*Goodridge, Henry Frederick Augustus, M.D., Physician to the Bath Royal United Hospital: Bath.
1871	Gover, Richard, M.B., Medical Officer to the Millbank Prison: 3 Crescent Terrace, Millbank.
1868	Green, Thomas Henry, M.D., Assistant Physician to, and Lecturer on Pathology at, the Charing Cross Hospital: 74 Wimpole Street.
Orig Memb	Greenhalgh, Robert, M.D., Physician Accoucheur to, and Lecturer on Midwifery at, St. Bartholomew's Hospital: 72 Grosvenor Street.
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1868	*Gueneau de Mussy, Henri, M.D.: Paris.
Orig Memb	Gull, Sir William Withey, Bart., M.D., F.R.S., D.C.L. (*President*): 74 Brook Street. (V.P. 1868–70, P. 1871–2.)
1870	*Gwynn, Edmund, M.D.: Heathfield, Streatham.
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Orig Memb	Harley, John, M.D., F.L.S., Assistant Physician to St. Thomas's Hospital: 78 Upper Berkeley Street.

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1869 HAWARD, J. WARRINGTON, Assistant Surgeon to the Hospital for Sick Children: 46 Queen Anne Street.

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1868 HAY, THOMAS B.: 43 Caledonian Road.

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1868 *HESLOP, THOMAS PRETIOUS, M.D., Physician to the Children's Hospital, Birmingham.

1868 HEWAN, ARCHIBALD, M.D.: 8 Minera Street, Eaton Square.

Orig Memb HEWETT, PRESCOTT GARDNER, Surgeon Extraordinary to H.M. the Queen; Surgeon to St. George's Hospital: 1 Chesterfield Street, Mayfair. (V.P. 1869–71.)

Orig Memb HEWITT, GRAILY, M.D., Professor of Midwifery in University College, and Obstetric Physician to University College Hospital: 36 Berkeley Square.

Orig Memb HICKS, J. BRAXTON, M D., F.R.S., F.L.S., Examiner in Midwifery at the University of London, Physician Accoucheur to, and Lecturer on Midwifery and the Diseases of Women and Children at, Guy's Hospital: 9 St. Thomas's Street, Southwark.

1868 HILL, BERKELEY, M.B. (C.), Surgeon to University College Hospital, Lecturer on Practical Surgery in University College, and Surgeon for out-Patients to the Lock Hospital: 55 Wimpole Street. (C. 1870–1.)

1868 HILL, THOMAS HARVEY: 4 Stanhope Terrace, Bayswater.

Orig Memb HILTON, JOHN, F.R.S., Surgeon Extraordinary to H.M. the Queen; Consulting Surgeon to Guy's Hospital: 10 New Broad Street. (V.P. 1867–9.)

Orig Memb HINTON, JAMES, Aural Surgeon to Guy's Hospital: 18 Savile Row. (C. 1870.)

1868 *HOLMAN, CONSTANTINE, M.D.: Reigate, Surrey.

1868 HOLMAN, WILLIAM HENRY, M.B.: 68 Adelaide Road South, Hampstead.

Orig Memb HOLMES, TIMOTHY, Examiner in Surgery at the Royal College of Physicians; Surgeon to, and Lecturer on Surgery at, St. George's Hospital; Surgeon-in-Chief to the Metropolitan Police Force: 31 Clarges Street, Piccadilly. (C. 1867–9.)

ELECTED

Orig Memb HOLT, BARNARD WIGHT, Senior Surgeon to, and Lecturer on Surgery at, the Westminster Hospital; Medical Officer of Health for Westminster: 14 Savile Row.

Orig Memb HOLTHOUSE, CARSTEN (C.), Surgeon to, and Lecturer on Surgery at, the Westminster Hospital; Surgeon to the South London Ophthalmic Hospital: 3 George Street, Hanover Square. (C. 1870–2.)

1871 HOUGHTON, HENRY G., L.K.Q.C.P. Ireland: 6 Mount Street, Grosvenor Square.

Orig Memb HULKE, JOHN WHITAKER, F.R.S., Surgeon to, and Lecturer on Practical Surgery at, the Middlesex Hospital, and Surgeon to the Royal London Ophthalmic Hospital; Lecturer on Anatomy and Physiology to the Royal College of Surgeons: 10 Old Burlington Street. (C. 1867–9.)

Orig Memb *HUMPHRY, GEORGE MURRAY, M.D., F.R.S., Professor of Anatomy in the University of Cambridge, and Surgeon to Addenbrooke's Hospital, Cambridge. (V.P. 1867–70.)

1871 *HUNT, EZRA: 18 Belmont, Bath.

Orig Memb HUTCHINSON, JONATHAN, Surgeon to, and Lecturer on Surgery at, the London Hospital; Surgeon to the Hospital for Diseases of the Skin, and Surgeon to the Royal London Ophthalmic Hospital: 4 Finsbury Circus. (C. 1867–8.)

Orig Memb JACKSON, J. HUGHLINGS, M.D. (C.), Physician to, and Lecturer on Physiology at, the London Hospital; Physician to the National Hospital for the Paralysed and Epileptic: 3 Manchester Square. (C. 1872.)

Orig Memb JENNER, Sir WILLIAM, Bart., M.D., D.C.L., F.R.S., Physician in Ordinary to H.M. the Queen and to H.R.H. the Prince of Wales; Physician to University College Hospital: 63 Brook Street. (V.P. 1867–70.)

Orig Memb JOHNSON, GEORGE, M.D., Physician to King's College Hospital, and Professor of the Principles and Practice of Medicine in King's College: 11 Savile Row.

Orig Memb JONES, SYDNEY, M.B., Surgeon to, and Lecturer on Surgery at, St. Thomas's Hospital: 10B St. Thomas's Street, Southwark. (C. 1867–8.)

1872 JONES, THOMAS, M.D.: 28 Chapel Street, Belgrave Square.

Orig Memb KELLY, CHARLES, M.D., Curator of the Museum at King's College and Assistant Physician to King's College Hospital: 94 Wimpole Street.

ELECTED

1868 KESTEVEN, WILLIAM B. (C.): 401 Holloway Road. (C. 1870–2.)

1868 LANGMORE, JOHN C., M.B. (C.): 20 Oxford Terrace, Hyde Park. (C. 1872.)

Orig Memb LANGTON, JOHN, Assistant Surgeon to, and Demonstrator of Anatomy at, St. Bartholomew's Hospital: 18 Harley Street.

1869 LAWRENCE, JAMES E.: High Street, Wandsworth.

Orig Memb LAWSON, GEORGE (*Hon. Secretary*), Surgeon to, and Lecturer on Practical Surgery at, the Middlesex Hospital, and Surgeon to the Royal London Ophthalmic Hospital: 12 Harley Street. (S. 1871–2.)

1868 LAWSON, HENRY, M.D., Assistant Physician to, and Lecturer on Physiology at, St. Mary's Hospital: 10 George Street, Hanover Square.

1869 LEACH, HARRY, Resident Medical Officer, Seamen's Hospital, Greenwich.

Orig Memb LEE, HENRY (V.P.), Surgeon to, and Lecturer on Pathology at, St. George's Hospital: 9 Savile Row. (V.P. 1870–2.)

1868 *LITTLE, LOUIS STROMEYER, China.

Orig Memb MACKENZIE, MORELL, M.D., Assistant Physician to, and Lecturer on Physiology at, the London Hospital, and Physician to the Hospital for Diseases of the Throat: 13 Weymouth Street, Portland Place.

1871 MACCORMAC, WILLIAM, Senior Assistant Surgeon to St. Thomas's Hospital: 13 Harley Street.

Orig Memb *MARCET, WILLIAM, M.D., F.R.S.: 1 Place Massena, Nice. (C. 1867–9.)

1868 MARSH, F. HOWARD, Demonstrator of Anatomy at St. Bartholomew's Hospital: 38 Guilford Street, Russell Square.

Orig Memb MAUNDER, CHARLES F., Surgeon to, and Lecturer on Clinical Surgery, and Demonstrator of Operative Surgery at, the London Hospital: 29 New Broad Street. (C. 1870–1.)

1868 *MAY, EDWARD HOOPER, M.D.: High Cross, Tottenham, Middlesex.

1868 MEADOWS, ALFRED, M.D. (C.), Physician Accoucheur to St. Mary's Hospital; Physician to the Hospital for Women; and Physician Accoucheur to the General Lying-in Hospital: 27 George Street, Hanover Square. (C. 1871–2.)

Orig Memb MOXON, WALTER, M.D., F.L.S., Assistant Physician to, and Lecturer on Pathology and Demonstrator of Morbid Anatomy at, Guy's Hospital: 6 Finsbury Circus.

Elected	
Orig Memb	Murchison, Charles, M.D., F.R.S., LL.D., Physician to St. Thomas's Hospital, Consulting Physician to the London Fever Hospital: 79 Wimpole Street. (C. 1867–69.)
1871	Murray, John, M.D., Inspector-General of Hospitals: 12 Stanley Gardens.
1868	Murray, John, M.D., Assistant Physician to, and Lecturer on Pathological Anatomy at, the Middlesex Hospital: 42 Harley Street.
1868	Myers, Arthur Bowen Richards, Assistant Surgeon to the Coldstream Guards: Vincent Square, Westminster.
Orig Memb	Norton, Arthur Treherne, Assistant Surgeon to, and Lecturer on Anatomy at, St. Mary's Hospital: 6 Wimpole Street.
Orig Memb	Nunn, Thomas William, Surgeon to the Middlesex Hospital: 8 Stratford Place, Oxford Street.
Orig Memb	Ogle, John William, M.D., Examiner in Anatomy and Physiology to the Royal College of Physicians; Physician to, and Lecturer on Pathology at, St. George's Hospital: 30 Cavendish Square. (C. 1867–8.)
1868	*Ogle, William, M.D., Physician to the Derbyshire General Infirmary: Derby.
1869	*Oldfield, E., M.D.: Surinam.
1868	*Oppert, Francis, M.D., Senior Physician to the City Dispensary. (Germany.)
Orig Memb	Paget, Sir James, Bart., D.C.L., F.R.S., Sergeant-Surgeon Extraordinary to H.M. the Queen; Surgeon in Ordinary to H.R.H. the Prince of Wales; Consulting Surgeon to St. Bartholomew's Hospital; and Surgeon to Christ's Hospital: 1 Harewood Place, Hanover Square. (V.P. 1867–8, P. 1869–70.)
Orig Memb	Pavy, Frederick William, M.D., F.R.S., Assistant Physician to, and Lecturer on Physiology at, Guy's Hospital: 35 Grosvenor Street. (C. 1869–71.)
Orig Memb	Peacock, Thomas Bevill, M.D., Physician to St. Thomas's Hospital, and to the City of London Hospital for Diseases of the Chest: 20 Finsbury Circus. (C. 1867–8, V.P. 1869–71.)
Orig Memb	Pick, Thomas Pickering, Assistant Surgeon to St. George's Hospital; Surgeon to the Belgrave Hospital for Children: 7 South Eaton Place, Eaton Square.
1871	*Playne, Alfred, M.B., Maidenhead.
Orig Memb	Pollock, A. Julius, M.D., Physician to the Charing Cross Hospital; Physician to the Foundling Hospital: 85 Harley Street, Cavendish Square.

ELECTED

1868 POLLOCK, JAMES EDWARD, M.D., Physician to the Hospital for Consumption and Diseases of the Chest: 52 Upper Brook Street, Grosvenor Square.

1871 POORE, GEORGE VIVIAN, M.B., Assistant Physician to, and Lecturer on Forensic Medicine at, the Charing Cross Hospital: 30 Wimpole Street.

Orig Memb POWELL, R. DOUGLAS, M.D., Assistant Physician to Charing Cross Hospital; Assistant Physician to the Hospital for Consumption and Diseases of the Chest: 15 Henrietta Street, Cavendish Square.

1868 *PRENTIS, CHARLES, Assistant Surgeon Bengal Army.

1870 PULLAR, ALFRED, M.D., 6 Spencer Road, New Wandsworth.

Orig Memb QUAIN, RICHARD, M.D., F.R.S., Physician to the Hospital for Consumption and Diseases of the Chest: 67 Harley Street. (C. 1867–9.)

Orig Memb RAMSKILL, J. SPENCE, M.D., Physician to, and Lecturer on Medicine at, the London Hospital; Senior Physician to the National Hospital for the Paralysed and Epileptic: 5 St. Helen's Place, Bishopsgate Street.

1868 RASCH, ADOLPHUS A., M.D., Honorary Physician to the German Hospital Eastern Dispensary: 7 South Street, Finsbury Square.

Orig Memb REES, GEORGE OWEN, M.D., F.R.S. (V.P.), Senior Physician to, and Lecturer on Medicine at, Guy's Hospital: 26 Albemarle Street. (V.P. 1871–2.)

1868 REEVES, HENRY A., Assistant Surgeon to, and Lecturer on Comparative Anatomy and Physiology, at the London Hospital: 36 Gordon Square.

1868 RENDLE, JAMES D., M.D., Medical Officer to the Government Convict Prison, Brixton: Park Hill, Clapham Park. (C. 1869–70.)

Orig Memb REYNOLDS, JOHN RUSSELL, M.D., F.R.S., Examiner in Medicine at the University of London; Professor of the Principles and Practice of Medicine in University College; Physician to University College Hospital: 38 Grosvenor Street. (C. 1867–8.)

1868 RICE, MICHAEL W., M.B.: 8 Sloane Terrace, Sloane Street.

Orig Memb RINGER, SYDNEY, M.D. (C.), Professor of Materia Medica in University College, and Physician to University College Hospital: 15 Cavendish Place. (C. 1871–2.)

Orig Memb ROUSE, JAMES, Assistant Surgeon to St. George's Hospital, and to the Royal Ophthalmic Hospital, Charing Cross; Lecturer on Anatomy at St. George's Hospital: 2 Wilton Street, Grosvenor Place.

Elected	
1868	SANDERSON, HUGH JAMES, M.D., Physician to the Hospital for Women: 26 Upper Berkeley Street.
Orig Memb	SANDERSON, JOHN BURDON, M.D., F.R.S. (V.P.), Professor of Practical Physiology in University College: 49 Queen Anne Street. (S. 1867–9, C. 1870, V.P. 1871–2.)
1869	SEDGWICK, LEONARD WILLIAM, M.D.: 2 Gloucester Terrace, Hyde Park.
Orig Memb	SHAW, ALEXANDER, Consulting Surgeon to the Middlesex Hospital: 40 Abbey Road West, Kilburn.
Orig Memb	SIBLEY, SEPTIMUS WILLIAM (C.): 12 New Burlington Street. (C. 1871–2.)
Orig Memb	SIBSON, FRANCIS, M.D., F.R.S., Physician to, and Lecturer on Clinical Medicine at, St. Mary's Hospital: 59 Brook Street. (C. 1867–70.)
1868	SIMMS, FREDERICK, M.B., Physician to the St. Pancras and Northern Dispensary: 46 Wimpole Street.
Orig Memb	SIMON, JOHN, D.C.L., F.R.S., Surgeon to, and Lecturer on Pathology at, St. Thomas's Hospital; Medical Officer of H.M. Most Honourable Privy Council: 40 Kensington Square. (V.P. 1867–70.)
1872	SLIGHT, GEORGE, M.D.: 25 Brewer Street, Regent Street.
1868	SMITH, HEYWOOD, M.D., Assistant Physician to the Hospital for Women: 2 Portugal Street, Grosvenor Square.
1868	SMITH, PROTHEROE, M.D., Physician to the Hospital for Women: 42 Park Street, Grosvenor Square.
Orig Memb	SMITH, THOMAS, Assistant Surgeon to, and Lecturer on Anatomy at, St. Bartholomew's Hospital, and Surgeon to the Hospital for Sick Children: 5 Stratford Place, Oxford Street. (C. 1869–71.)
1868	*SNOW, WILLIAM V., M.D.: Eastbourne.
Orig Memb	SOUTHEY, REGINALD, M.D., Physician to, and Lecturer on Forensic Medicine and Hygiene at, St. Bartholomew's Hospital: 6 Harley Street, Cavendish Square. (C. 1867–70.)
1868	SQUAREY, CHARLES EDWARD, M.B., Assistant Physician to the Hospital for Women: 13 Upper Wimpole Street.
Orig Memb	STEPHEN, ANDREW, M.D.: 58 Queen's Gate, Kensington.
Orig Memb	STEWART, ALEXANDER PATRICK, M.D. (V.P.), Consulting Physician to the Middlesex Hospital: 75 Grosvenor Street. (V.P. 1872.)
1871	STEWART, WILLIAM E.: 12 Weymouth Street, Portland Place.

Elected	
1872	SUTHERLAND, HENRY, M.B.: 6 Richmond Terrace, Whitehall.
1868	SUTRO, SIGISMUND, M.D., Senior Physician to the German Hospital: 37A Finsbury Square.
Orig Memb	SUTTON, HENRY GAWEN, M.B., Assistant Physician to, and Lecturer on Pathology at the London Hospital, and Assistant Physician to the City of London Hospital for Diseases of the Chest: 9 Finsbury Square.
1868	TATHAM, JOHN, M.D., Assistant Physician to the Hospital for Consumption and Diseases of the Chest: 1 Wilton Place, Knightsbridge.
Orig Memb	TEEVAN, WILLIAM F., Surgeon to the West London Hospital: 10 Portman Square.
Orig Memb	THOMPSON, EDMUND SYMES, M.D., Physician to the Hospital for Consumption and Diseases of the Chest; Gresham Professor of Medicine: 3 Upper George Street, Portman Square.
Orig Memb	THOMPSON, Sir HENRY, Knt., Surgeon Extraordinary to H.M. the King of the Belgians; Professor of Clinical Surgery in University College, and Surgeon to University College Hospital: 35 Wimpole Street. (C. 1867–8.)
Orig Memb	THOMPSON, HENRY, M.D., Fellow of St. John's College, Cambridge; Senior Physician to the Middlesex Hospital: 53 Queen Anne Street.
1868	THOROWGOOD, JOHN C., M.D., Assistant Physician to the City of London Hospital for Diseases of the Chest, and Lecturer on Materia Medica at the Middlesex Hospital: 61 Welbeck Street.
1868	VENNING, EDGCOMBE, Assistant Surgeon 1st Life Guards, Knightsbridge Barracks.
1869	VERNON, BOWATER J., Ophthalmic Surgeon to St. Bartholomew's Hospital: 44A Wimpole Street.
1868	WAGSTAFFE, WILLIAM WARWICK, Resident Assistant Surgeon to St. Thomas's Hospital: Stangate, Lambeth.
1869	WALKER, JOSEPH, Dental Surgeon to the Westminster Hospital: 22 Grosvenor Street.
1868	WARD, STEPHEN H., M.D., Physician to the Seamen's Hospital, Greenwich, and to the City of London Hospital for Diseases of the Chest: 28 Finsbury Circus.
1870	*WARWICK, RICHARD ARCHER, M.D., Surgeon to the Richmond Infirmary: 5 Hill Rise, Richmond.
1868	*WARWICK, WILLIAM R., M.D.: Southend, Essex.
1868	WATKINS, EDWIN T., M.D.: 61 Guilford Street.

ELECTED

Orig Memb WATSON, Sir THOMAS, Bart., M.D., D.C.L., LL.D., F.R.S., Physician Extraordinary to H.M. the Queen; Consulting Physician to King's College Hospital: 16 Henrietta Street, Cavendish Square. (P. 1867–8.)

Orig Memb WATSON, WILLIAM SPENCER, M.B., Surgeon to the Royal South London and to the Central London Ophthalmic Hospitals: 7 Henrietta Street, Cavendish Square.

Orig Memb WEBER, HERMANN, M.D., Physician to the German Hospital: 10 Grosvenor Street. (C. 1867–71.)

1869 WELLS, J. SOELBERG, M.D., Professor of Ophthalmology at King's College; Ophthalmic Surgeon to King's College Hospital; and Assistant Surgeon to the Royal London Ophthalmic Hospital, Moorfields: 16 Savile Row.

1868 WELLS, THOMAS SPENCER, Surgeon in Ordinary to H.M.'s Household; Surgeon to the Samaritan Free Hospital: 3 Upper Grosvenor Street.

1868 WHIPHAM, THOMAS TILLYER, M.B., Demonstrator of Anatomy at St. George's Hospital: 37 Green Street, Grosvenor Square.

1871 WIGHT, GEORGE, M.B., C.M., 428 Liverpool Road, N.

Orig Memb WILKS, SAMUEL, M.D., F.R.S. (C.), Examiner in Medicine at the University of London; Physician to, and Lecturer on Medicine at, Guy's Hospital: 77 Grosvenor Street. (C. 1871–2.)

Orig Memb WILLETT, ALFRED (C.), Assistant Surgeon to St. Bartholomew's Hospital: 36 Wimpole Street. (C. 1872.)

Orig Memb WILLIAMS, CHARLES JAMES BLASIUS, M.D., F.R.S., Consulting Physician to the Hospital for Consumption and Diseases of the Chest: 49 Upper Brook Street. (V.P. 1867–70.)

Orig Memb WILLIAMS, CHARLES THEODORE, M.D., Physician to the Hospital for Consumption and Diseases of the Chest: 78 Park Street, Grosvenor Square.

1870 WILLIAMS, WILLIAM RHYS, M.D., Bethlehem Royal Hospital, Lambeth Road.

Orig Memb *WILLIS, FRANCIS, M.D.: Braceborough, Stamford.

1868 WILTSHIRE, ALFRED, M.D.: 57 Wimpole Street.

1869 WOLFF, ABRAHAM, Surgeon to the Spanish Jews' Hospital: 66 Gower Street.

1872 YEO, J. BURNEY, M.D., Assistant Physician to King's College Hospital, and to the Brompton Hospital for Consumption: 60 St. James Street, Piccadilly.

CLINICAL SOCIETY OF LONDON.—BALANCE SHEET 1870–1.

1870		£	s.	d.
	Balance from last account	206	1	8
	Arrears of subscriptions for 1870–1	6	6	0
1871				
	Subscriptions for 1870–1	192	3	0
	Admission fees and subscriptions from new members	12	12	0
	Sale of 'Transactions'	20	7	4
	Unpaid arrears of subscriptions:			
	1868–9 (£ 2, s. 2, d. 0)			
	1870–1 (£ 1, s. 1, d. 0)			
		437	10	0

1871		£	s.	d.
	Cost of printing, binding, and delivering Vol. IV. of 'Transactions'	84	0	0
	Medical-Chirurgical Society for use of rooms	47	5	0
	Refreshment and attendance	31	10	0
	Printing, stationery, postage, &c.	10	9	6
	Collecting subscriptions	8	4	6
	Longmans' commission and cost of advertisements	6	18	0
		188	7	0
	Balance due from the Treasurer to the Society	249	3	0
		437	10	0

E. HEADLAM GREENHOW,
Treasurer.

Audited the above and found correct, December 29, 1871.
JOHN MURRAY, W. CAYLEY, *Auditors.*
T. BUZZARD, *Hon. Sec.*

LIBRARY
ASSOCIATION.

ADDRESS BY THE PRESIDENT,

SIR WILLIAM GULL, BART., M.D., D.C.L. OXON., F.R.S.

GENTLEMEN,—I shall have to-night to throw myself very much upon the indulgence of the Society in any remarks I may have to make, because I have not had time to dress them in such words as I should desire in order to place them properly before you. Many circumstances, which I need not dwell upon, have prevented my better intention; but I could not be satisfied to take the chair and assume the honour which you have conferred upon me a second time without some observations. It would not be becoming that I should do so either in respect of the honour you have bestowed upon me or of the work in which we have to engage, since, as president of this Society, I am in some sense your spokesman to the world concerning the objects we set before us.

Our position is a somewhat peculiar one. We are partially antagonistic to the theologic and the scientific aspects of the world as generally presented to us. We differ in opinion in one sense, and, I think, in a very serious sense, from that section of theologians who regard the world as a decaying world—as a world that was once better than it now is; who believe there was a past, however limited, without disease or death; who regard the troubles and perils which now exist as the result of antecedents which I shall not now discuss, and which evils we must bear as best we can, with but little hope they will be better, and with the fear that they may be worse. This is, I think, entirely opposed to the views which, as students of nature, we are obliged to entertain. Whoever will take the least pains to look over the facts of creation may see that this world has always been evolving into that

which is higher and better—that it has always had a coming future of good, not having reached perfection, and not, in the present condition of things, approaching it, but ever advancing towards that 'far off divine event.'

Whilst the one set of thinkers regard the world as decaying, we look on it as improving—improving in all respects, in its physical conditions as well as in its moral and intellectual conditions; and as a Society we meet here year by year for working together towards the end which this idea sets before us. We are optimists of nature. We believe—though we rarely see signs of it, and work more by faith than by sight—that this world has, amidst all its diseases and its failures, a law of perfection with its inexhaustible fruits in store for it; and when we see individual suffering, disease, deformity, or premature death, we regard them as the failures of a law which in our minds we strive to recognise, though its operations are so often frustrated.

Again, believing as I do that this is the view which we all must entertain—that to-morrow will be better than to-day, and the day after better than that—as in the days of convalescence, when the last are always the best—still I think we cannot but feel that we are hindered by considerations, coming from the side of physical science, and which we owe it to ourselves not to receive as final, considerations which would make us forego that hope which the student of the lower forms in nature is very apt to deny himself. We are prone to think we have now before us all the conditions that are possible in respect of the intellect, and that science has its proper *rôle* finally marked out for it which cannot be extended; a line beyond which it cannot pass. The student of medicine, however, occupied with facts which cannot be included in our present scientific conceptions, is perhaps better placed than his colleague in the lower physics for the expansion of his ideas, if only in this—that he must believe that the intellect will open for us a wider world beyond and incommensurable with that which we now consider the scientific, the limit of which at this moment is the limit of the ponderable and the measurable.

If the early animal inhabitants of this planet could have met in conclave they might well have concluded that there

was nothing conceivable beyond their own degree of mental organisation, and could anyone have foreshadowed to such dull intelligences the future mental activity of man, he must have met with an obstinate and sceptical denial. The student of medicine can as little deny the subjective as he can the objective. If he resists the inroads of superstition, on the one hand, neither can he admit on the other the limit which scepticism would impose. We are often taunted with being servile worshippers of nature, and yet we are so only in a limited degree. We cannot believe that nature, as thus vaguely expressed, is in the highest sense perfect. Though we are admirers, we are not blind devotees of Nature. Nature, as expressed to us in living forms, shows the tendency to perfection, though in many parts the results are imperfect. We are met here to-night in view of such imperfection, and with that as an object for the operations of our intellect.

To turn more especially to the object of our work, the living body.—There is no doubt but that it is of the first importance for practice to obtain the largest and truest view of all the bearings of the subject. One of the greatest advances in clinical medicine, and which is daily growing, is the more thorough physiological view of disease. Disease is not now regarded as some independent entity in the body, but as a perversion of those essential life conditions which when normal constitute the state of health. We can no longer regard all diseases as grafts on healthy parts. The time is gone by when text-books could teach what I and probably many others here had to learn,—that acute disease may be idiopathic in healthy subjects.

In one sense it might be maintained that there is no such thing as disease. Abstracted from personal care and pain, disease sinks at once into the ordinary course of physical phenomena, and would rank in a far different category from that in which we usually contemplate it. It is well sometimes to look at our facts in such light, to accustom the mind to other conceptions, although I fear that if we maintained such a position we should hardly be welcome to the sick, and certainly the science of medicine or of cure could not exist. 'Skin for skin, what will not a man give for

his life?' and every man has to consider, and well to consider, his own personal existence and comfort. A practical view of disease which we medical men cannot too earnestly entertain. Still, as I say, it is well sometimes, for the due enlargement of the conceptions of the mind, to get views beyond that which is merely personal, and to consider that those conditions which we call disease belong to a still larger class of phenomena.

At our present stage of knowledge we have, I am happy to say, travelled a long way beyond the necessity for definitions, or you might perhaps expect from me a definition of disease. I do not, however, think that there is any member of this Society, or of the Pathological Society, or of the Medico-Chirurgical Society, that would venture to give such a definition. Disease is not a status, nor a definable condition, but that course of nature in a living thing which is not according to its health. It is, whatever else it may be, such a course of nature for the individual.

This view of disease takes in a beginning, a middle, and an end. We have often to consider conditions afar off in the past to come to a beginning. It is to be remembered that, in present disease, we are sometimes dealing with physiological conditions in a course of nature which may have had distant beginnings. Disease to the ignorant is some present definable entity; something to be searched out and contemplated by itself, and, if need be, attacked and exorcised as might be an evil spirit. This idea has given us a word still extant in medicine, 'seizure.' But what is a sick man seized by? The old theological notion that an evil spirit entered the sick is gone, though its mark remains, and still imposes upon the mind some part of the popular notion. Seizures, however, there are none, though we still use the word to express the beginnings of disease, and although to the ignorant it still implies something *ab extra* that must be rooted out of the individual as soon as possible.

To the superficial observer, disease is a chaotic conception. A chaos of symptoms to be met at all points with drugs and similar means. To every symptom its remedy. And thereon is even founded a system of medicine. To its disciples disease can therefore be only a set of symptoms; but

to the students of a truer medical science the causes of the symptoms are the objects of contemplation. We require a history and not a definition of disease.

I said just now that by any one whose notions of disease were duly corrected, many states of the body formerly regarded as disease could not now be so considered. But such errors do still obtain in the practice of our profession.

It may be fairly said that there are some people who, without having any disease, are born to suffer. Under the present conditions of sublunary things, they cannot maintain a healthy equilibrium. They are always ailing. Medicine fails on such. Unstable health is their law, in spite of the contents of the Pharmacopœia. In practical medicine it is important to recognise these sufferers. The same remarks apply equally to the conditions of age; and this at various periods of life.

Of tissues, as of the whole man, it may be said there is a time to be born and a time to die, but for different individuals this cannot well be determined, and at least the diagnosis is difficult. Yet I may appeal to my hearers if they cannot recal cases where they have prescribed all the farrago of tonics, with as good a purpose and result as if they would thereby strive to prevent the setting of the sun. I repeat, there are states too hastily regarded as disease, which are to the individual his normal existence. Such are the peculiarities of some persons when measured by the cases of others. Such are the normal senile changes of the body. Such, too, are the abnormal senile changes produced by disease. For in many diseases there comes a time when the conditions undergo change, and we get a new order, not strictly dependent upon that which preceded; as, for instance, syphilis may cease to exhibit its proper effects, and may have produced such a general influence on the nutrition as to lead to early decay: syphilis ceasing as syphilis, but leaving decay in its stead. Thus the problems with which we have to deal may change, even as we are occupied in their solution, and that which we have to deal with in the end may be entirely different from that with which we began. Iodide of potassium for instance may cure a syphilis, but the cachexia of the organism caused by the syphilis and its

remedies may never be cured, but may advance in spite of all specifics, being no more a disease than the decay of advanced age is disease.

Now let us consider the extent of our work: all the disturbing influences and the various morbific agencies that act upon our organism. I sometimes think that if, instead of covering these walls with books which are but little read, we were to emblazon them with a catalogue of all the morbific agents and agencies which may disturb our health, from the itch insect to the typhoid poison, the gain would be great. I am old enough to know—I am not sure that there may not be others here who may remember also—that itch was once considered to be a constitutional disease! I know those who believe now that pityriasis versicolor may depend upon hepatic or uterine disorder! Our supposed knowledge of other diseases may, though unsuspected, be equally at fault.

To know in exact detail the lines of morbid action and seats of the primary operation of morbific causes would be of incalculable worth to us. Upon what tissue, for instance, does the scarlet fever poison first operate? 'Oh,' it will be said, 'upon the blood.' But this may be very much doubted. It is more than doubtful if the blood be affected directly by the poison of this and other fevers. Many organs with which the blood has most to do show no change. Look at the voluntary muscles: they receive much blood, but do not primarily go wrong. Look at the choroid and other deep vascular tissues of the eye, which, however richly supplied with blood, do not get particularly involved in the early phenomena of scarlet fever. It may be much doubted whether our notions about the blood are not very vague, and I must appeal to the members of this Society to help to improve our knowledge on these points; to help us, in respect of the primary operation of morbid poisons, to determine upon what tissues they first act, and what is the first effect of their operation. Their entry and exit from the blood may be but indifferent facts. Probably, and almost certainly, they do pass through persons indifferent to their operation. What we want to know in clinical medicine is where, according to their kind, they act. We may know where pityriasis ver-

sicolor begins and how it limits its operations, but we do not know when and where the poison of scarlet fever first begins to rankle, or when or how the poison of small-pox first begins its fatal work.

There is much hope that comparative pathology will teach us something on this and kindred subjects. We are learning that there are parts in us more and other than we individually want, and without which we should be no losers: the relicta of our ancestral relations. Other organisms may have needed parts which may be superfluous and even injurious to us. A perfected comparative anatomy and pathology may teach us more on this. Probably coming, as it seems we have, through a long line of dissimilar ancestry, there may have been entailed upon us elements not especially needful or useful. This opens an enquiry whether, if there be such parts or organs, they may not be, from their very nature, the more liable to disease, since those parts whose functions are least definite are apt to be the foci of pathological changes. Every pathologist will bear me out in the assertion that malformed parts are common seats of disease. Instance the cancer of undescended testicle. Again the vitelline duct in the ovum of man, considering the size of the ovum, must have but a microscopic function, and it may be that the vitellus is but the relictum of the ovipara. But however it be, I do not suppose its function in man is great, either in respect of time or space; and certainly for the most part the vitello-intestinal duct is as transient as we may suppose its importance to be slight. Still it sometimes persists and grows with the intestine, giving rise to a large and by no means unimportant diverticulum of the ileum. Our museums contain frequent instances of this, and there happens to be in the museum at Guy's a diverticulum in a full grown state, retaining its connexion with the umbilicus. This was taken from the body of a young man aged thirty-six, who had enjoyed perfect health until his fatal illness, which was due to this superfluity. Owing to cold, or some such circumstance, an irregular peristalsis of the intestines twisted them round this useless part and set up fatal obstruction, so that to him was applicable, with a change of a word, the epitaph on Burton, the author of the 'Anatomy of Melancholy,' and I

requested it might be thus recorded:—"Cui vitam et mortem dedit diverticulum." How much longer and happier perhaps would have been this man's life had his oviparious ancestry not entailed this vitellus and its duct upon him. Perhaps my illustration may admit of critical objections, but there still remains the suggestion, that an advanced comparative anatomy and pathology may show that there are some organs in us without which, as individuals, we might be much better off. These sciences may tell us more of the vital history of different organs and tissues, for like bees, we must go far afield in these regions for our honey, and gather from every source of knowledge, returning home to study the special life and function of every fibre and organ.

A great nature-philosopher (Oken) has said that every part of the body is nerve—that bone is hardened nerve. Whether this view be extravagant or not I will not stop to discuss, since we must believe that the elements of the groups of the different textures are living—that each has its own biology and pathology. The history of the process of life, from the primitive trace in the ovum to the last breath of age, is a series of illustrations of textural growth and decay; impressing upon us the truth that, however necessary it may be to obtain general conceptions of the organic law as a whole, it is only by the most special study that we can pursue the objects which medicine proposes. The history of whole organs in us confirms this truth. Could the early fœtus feel and reason upon its existence, what would be its disquiet at the apparently revolutionary changes at work in its structures—atrophy everywhere side by side with growth,—until, in ignorance, it might desire to forestall and hinder the organic laws. These are fanciful speculations, but may bear upon our ignorance at a more advanced stage. It is to be hoped that the new hospital now established in London for comparative pathology will afford us a larger knowledge of the diseases of the different tissues and organs in the animal series, and will show us the natural history of disease, not only on a larger scale, but with a truer appreciation than we could gain if our observations were limited to the human body alone. For if we are to operate successfully on living things, we must be largely informed as to the full

meaning, not alone of the whole individual, but of his minutest parts.

So far for the general scope of clinical work, a due estimate of which bears directly on diagnosis, since the eye sees no more than it brings with it the power of seeing, and as diagnosis is the basis of practice, it must be laid four-square to every aspect of knowledge.

Improvement in physical diagnosis must always be an object immediately dear to a Clinical Society, and yet it is often, and for the most part, however it may be perfected, only the preliminary process to sound practice. Upon the exactest mechanical diagnosis must follow the intellectual determination of the vital conditions, and of the possible and the impossible. It may be granted that the practically possible and impossible are changing, and that our efforts are to destroy the latter. Still, there is always a practical impossible, and in relation to disease we have always to make such a diagnosis as shall show what we can and what we cannot effect. Perhaps it would be well if members of this Society would bring before it some illustrations of the impossible as well as of the possible. It would tend to prevent us from making foolish, because ignorant, attempts to do that which cannot be accomplished; attempts which only result in loss and hurt to the individual. As a practical profession, this is not an unimportant consideration. I remember my friend Dr. Acland, the present Regius Professor of Medicine at the University of Oxford, saying to me that he would have engraved round the Radcliffe Infirmary the saying of Trophimus the Ephesian, 'He is the best physician who knows what is possible and impossible.' The negative results of such a mental exercise are by no means indifferent if one may judge by the results which are often seen in the treatment of chronic incurable disease where the small remnant of life is wasted in futile and painful efforts at cure. And in the same category are the attempts at the impossible upon those unfortunate members of the human family who are born with a feeble vital capacity. Delicate women, for instance, who, if I may say so, have no more stature of strength than falls to the lot of a canary, and yet upon whom we try, how vainly, all the chemistry of tonics. A friend of mine once consulting

me on such an instance, I could not refrain saying to him, 'Do you know what you are trying to do? You are trying to put a quart measure into a pint.' He replied, 'I have been giving strengthening medicines to this patient for years. I have exhausted every means, and yet she is ailing;—always ailing.' I saw the other day an advertisement inviting persons of short stature to come and be made tall, and with the promise that any defects of height could be duly rectified—a proposition not much more absurd than that we are expected to meet promptly, by a prescription of iron or quinine, for every sort of debility that may come before us. As our business is not knavery but knowledge, it is clear that the diagnosis of the possible and the impossible is of the first importance, that we may not waste words and efforts on useless pursuits.

On physical diagnosis I shall not detain you. All are fully alive to the importance of advancing physical diagnosis to the fullest perfection. Therefore, when any new means or increased exactness of the old means of physical diagnosis is discovered, this Society cannot but hail it with delight, even though it may throw us for a time into doubt and confusion. Such is the state of thermometric knowledge at the present moment. I have more than once been tempted to lay aside my thermometer because it has contradicted my clinical knowledge. But it must be so at first with all new evidence; it takes time to bring it fairly into court.

But that vital diagnosis to which I have alluded, and which weights and measures, however refined, cannot give us, comes from experience. Take, for instance, such an eruptive fever as small-pox. From its outset its future can be predicted, if not as to intensity, at least as to character and duration. Well might the poet insist, and chiefly is it true in clinical medicine, that '*per causas scire est vere scire.*' That which, in contrast with mechanical diagnosis, may be called vital diagnosis, is the last important object at which this Society aims. What our actual knowledge on this is may be illustrated by reference to the diagnosis of pneumonia. The mechanical diagnosis of pneumonia is familiar through physical signs, but how far from exact practice does this land us. For prognosis and treatment we need a deeper

insight. Some forms of pneumonia will, we know with certainty, clear up in seven days, whilst others will never clear up at all, although both may begin much alike. One has, to use a former expression, a beginning, a middle, and an end; the other has but a beginning. What are the grounds for a true discrimination of each and of all the intermediate gradations, and of that form which, as I have said, has but a beginning with no other ending but death? What are the invariable facts which shall tell us why this case degenerates into a form of phthisis, going on in a variable degree, for years, whilst that shall run its course more quickly, killing the patient in a few weeks or months? We know, as the logicians say, the differentiæ of common inflammation and the various forms of specific inflammation—rheumatic, syphilitic, gouty,—all of which are modes of vital diagnosis. If we put the word aright upon them we adapt the treatment accordingly; but of pneumonia we have no such exact diagnosis, and I speak of pneumonia since the pulmonary system equals in a sense the systemic. It cannot be doubted that the tissues of the lung undergo a great variety of changes, having different vital qualities. The dynamics from the beginning are different, though difficult or impossible to distinguish. On the skin we can better distinguish, but not yet so accurately as we ought. It is too often but a general distinction, as of eczematous affections from leprous affections, and of papular from both; but in pneumonia and pleurisy, renal diseases and other internal affections, we have often not even this accuracy of vital diagnosis; and, therefore, I call upon this Society to perfect it. The conditions of physical diagnosis are imperfect, but those of vital diagnosis are much more so.

Lately you are aware I have been called upon to make a diagnosis of the finest kind;—of the working of the function of the brain as expressed in the mind—not to diagnosticate a tumour, a ramollissement, a degeneration of the brain, but to test its moral and intellectual dynamics. There is often encountered a prejudice at the outset of such an inquiry from the taunt that the doctors assert that such and such a person is insane because he has committed a crime. But permit me for a moment to point out that we judge of the previous

strength of any material by the strain it will bear. Should it break under the test, it would be absurd to maintain it could not have been weak or imperfect beforehand; and may not the first evidence of mental and moral defect be due to some stress of circumstances, often exaggerated and distorted, which is put upon the brain, and that break-down which in one would be crime becomes in another the first sign of insanity? In the defects and diseases of other organs this is a matter of the tritest experience. How often does aortic or mitral imperfection first become known by some sudden exertion; yet who would on that account deny the previous weakness? The beginnings of disease are, as a rule, latent and obscure, and discover themselves only when some strain is put upon the weak part. Illustrations of this are at hand on all sides, whether in the heart, the lungs, the abdomen, or the brain. It was only our ignorance which led us formerly to believe in acute idiopathic disease in healthy subjects, and it is probably equally so with nervous conditions, and with the mind. There are, doubtless, many persons living uneventful lives who maintain a sane equilibrium until influenced by some circumstance, real or imaginary, and who then at once show their weakness; and yet from the high seat of justice we often hear the objection put forth as an argument that therefore the patient was sound because there was no sign of insanity beforehand. But the sign of unsoundness may be what has occurred. I am sure we, as clinical students, have our minds perfectly alive to this, and although some of the most learned and practical men in our profession maintain that the diagnosis of the intellectual and moral status is an inquiry we ought not to take up, and that the common sense of man fits every one equally to make this diagnosis with the most accomplished physician, I cannot think so; and if it be a fact it must not remain so, for it would be unworthy of us to leave uncultivated a field of inquiry so important to us all. *Medici sumus, humani nihil nobis alienum esse putamus.* As medical men we know of tendencies to latent insanity without the least overt evidence of their existence; minds which on a strain will certainly give way. We know this as well as we know of weak and imperfect hearts or other viscera, which perform their functions fairly until called upon to

meet some extra demand, and then they fail altogether. The onset of acute disorders of mind or body, to use a common expression, by no means coincides with the date of their causes. This is so well established in medicine that we go back upon a latent cause from the occurrence of acute effects, feeling assured we shall find it, however previously hidden. It is only the ignorant who can overlook these connexions, and yet in matters of the mind this oversight is esteemed the safeguard of truth!

I come now to the last division of my subject, Therapeutics. The other aspects of medicine might afford sufficiently pleasant contemplations, but *finis coronat opus*—care, and where possible medication, in order to cure. We are often twitted with being, as I have before said, merely passive attendants upon and worshippers of Nature. As Göethe satirically says, 'Man durchstudirt die gross' und kleine Welt, um es am Ende gehen zu lassen, wie's Gottgefällt.' This, however, I repudiate. We believe that God's will is that we should be wise and active, and when we say, and I am sure our profession is not behind any in saying devoutly, 'Thy will be done,' it is not that we may sit down, like fatalist Moslems, and let the supposed inevitable pass over us; but ours is an active interpretation of the prayer, that we may learn the Divine will in order to obey it, convinced that the Divine will is the exact contrary of ignorance. There is, no doubt, a time to each when he must bear the lot in patience and submission, but, as students and practitioners of medicine, our interpretation of the Divine prayer is in an active sense, and should incite us to every exertion. The will of God, as expressed in the purposes of the human intellect, is apt to be too lightly passed over, but he who has but a faint conception of that purpose will not be open to Göethe's remark of letting events pass on without any effort to control them. It is only they who are weak in faith and intellect who exclaim, 'The world (time) is out of joint. Oh, wretched spite, that ever I was born to set it right!'—for this is our true sphere of work. Whilst we more clearly discern the operation of those forces which bring health out of disease, we are not contented to be spectators only. Efforts of nature are regarded with watchfulness and doubt,

and often must we agree with Professor Haughton, who, when told that the evacuations of cholera were due to an effort of nature to cure the disease, said: 'I will tell you what Nature wants; she wants to put the man in his coffin. And that is what she succeeds in doing for the most part.' In fact, the expression, 'effort of nature' is little else than a vague metaphysical conception, a mere *imago* of the true and practical *idea* of the recuperative forces which are at work in the organism, and which collectively we name the *vis medicatrix naturæ*—that centripetal tendency which restores the disturbed relations. Were we able to make a due analysis of this tendency in us, it would indicate a true science of therapeutics. It would show that in the subject of typhus or typhoid, or other fever, there were, together with the more obvious fever facts, others correlated to them, by which health is for the most part restored. In other words, that under the conditions of disease there lie physiological processes, which not only restore the normal equilibrium, but which leave a permanent resistance to any similar disturbance. The causes of this immunity are as much facts for our study as are those which we more commonly call the disease. For example, in small-pox, to the indifferent observer the whole disease is embraced in the description of its symptoms and the eruption; but there is a most important obverse to these in those prominent physiological changes by which the subject of them is likely to obtain a permanent indifference to the variolous process. I desire more expressly to say that, in the class of fevers, what we term the disease is but the attendant disturbance of an underlying process, which, being completed, its accidents subside. We owe a very practical application of these views to Dr. Stokes, of Dublin. In some excellent papers on fever, he long ago pointed out that the various local affections in fever must be looked upon as part of the fever itself, and not as separated or separable conditions. I well remember the time when the irritation of the brain in fever was regarded as inflammation of the meninges, to be treated with mercurial inunction;—when irritation of the bowels and the fœtid evacuations were to be corrected by giving the grey powder;—the obstruction of the air-passages to be medicated

by blisters and expectorants. When I had to teach medicine, I impressed as far as I could upon the students of my class the importance in fever therapeutics of minding these local affections as our Nelson minded the signals given him to retire from action; whilst, at the same time, we maintain to the best of our power the strength of the patient.

In therapeutics as in pathology we have no kinship with those who believe that diseases are only sets of symptoms to be combated by drugs. The symptoms of a disease may, in fact, give doubtful and dangerous indications for treatment. The worst diseases have but few and not prominent symptoms, and even when the symptoms are characteristic they are not the disease. Frequently the most numerous symptoms occur without any disease at all. It may be all very well for the popular charlatan to make symptoms the whole object of his efforts, but to the better informed the chief fact is, as I have said, the condition which underlies and produces them.

In therapeutics the greater often depends upon the less. It has been said that Wellington overcame his great antagonist by attending to the shoes of his soldiers. This may have been so, for often we see great purposes frustrated by neglect of trifles: a man brought through his fever, and dying of bedsore; a broken spine in process of repair, whilst death comes on from the careless passing of a catheter.

With the gold-headed cane and the horsehair wig passed away, we may hope, the days of pompous inanity; and we may further hope that nothing will hereafter be thought unworthy the attention of the physician which can contribute to the saving of a life.

For the surgeons, as I have hinted, a new prospect is opening. Should advancing knowledge show that we have parts or organs of doubtful use, and especially if these equivocal parts are liable to disease,—what a land of promise for operations!

But I must forbear. I am sure we have a hopeful future before us, whatever may be the direction of our efforts, and it is my duty and my privilege to invite you to enter upon it with industrious hands and true hearts.

COMMUNICATIONS.

I.—*Case of Melanotic Tumour of the Eye treated by Excision of the Globe, and the application of the Chloride of Zinc Paste to the remaining structures within the Orbit.* By GEORGE LAWSON. *Read October* 13, 1871.

ELLEN M., æt. 62, an exceedingly pale and emaciated woman, very feeble, and apparently much worn by suffering, was admitted into the Royal London Ophthalmic Hospital on July 17, 1871, suffering from a large melanotic tumour of the eye.

Her family history was good. Her mother, æt. 92, was still living, and none of her father's or mother's family had suffered from cancer. She was the mother of four children.

The account the patient gave of the commencement and progress of the disease in her eye was rather obscure, and I do not think very reliable. She said that about Christmas, 1868, she had a severe attack of inflammation of the left eye, accompanied with excessive pain, which lasted for several days. The acuteness of the inflammation then gradually subsided, but from that time all sight was gone. Since then she has had two more attacks of inflammation of the blind eye, from both of which she had great suffering. The eyeball she is sure did not begin to protrude until three months before she applied to the hospital, since which time the disease has advanced rapidly. During the last twelve weeks she had been in almost constant pain.

State on Admission.—The eye was prominent about three-quarters of an inch, and evidently filled with a large melanotic tumour, which had burst through the sclerotic posteriorly, and was extending into the orbit.

The treatment which I adopted in this patient was, first to excise the eye and the large melanotic tumour which pro-

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truded from it into the orbit. All bleeding having been arrested with the actual cautery, the chloride of zinc paste, spread on pieces of lint, was applied to the apex and sides of the orbital cavity. A plug of cotton-wool was then introduced, to keep the strips of lint with the chloride of zinc *in situ*, and the whole was maintained in position by a turn of a roller round the head. The object of thus freely applying the chloride of zinc was to destroy all the tissues within the orbit, and thus to get rid of all the cancer germs with which those structures were probably infiltrated. The patient progressed favourably after the operation, and has made a good recovery; the whole of the tissues within the orbit came away as sloughs, and the greater portion of the orbital bones have exfoliated. She is still in the hospital as she continues very feeble, and portions of dead bone yet remain to be detached, but she is improving daily in health, and will shortly, I hope, be able to return to her friends.

Although the prognosis of melanotic tumours of the orbit is always unfavourable, as the disease is very apt to invade internal organs, and thus eventually to destroy life, yet it is a great boon to the patient if the surgeon is able to take away such a hideous growth as a large melanotic orbital tumour, and by so doing to relieve the terrible suffering which always accompanies the disease in this locality. Severe as the mode of treatment which I have described appears to be, yet it is accompanied with comparatively slight suffering, and with but little jeopardy to life. I have frequently performed this operation for recurrent growths in the orbit, and have met with a degree of success that justifies my recommending it in fit cases. In one patient * on whom I operated in a similar manner in 1866, for a scirrhus tumour of the orbit, the whole of the bony structures of the orbit exfoliated in one piece, and may now be seen in the museum of the Middlesex Hospital. The patient is still living, and in the enjoyment of excellent health.

In cases, however, of *small* melanotic tumours within the eye, which have neither burst through the external ocular tunics, nor even greatly distended them, the simple excision of the globe is frequently sufficient, and should be tried before resorting to the more serious proceeding with the chloride of zinc. I have now a patient from whom I removed the eye, about three years ago, on account of a small melanotic

* 'Pathological Transactions,' vol. xviii. p. 233.

tumour growing from the choroid, and although she had a very melanotic aspect, yet up to the present time there has been no recurrence of the disease in the orbit. In this patient the tumour was only the size of a pea, and the symptoms which led her to seek advice were failure of sight in the one eye, with a complete loss of a portion of the field of vision. The ophthalmoscope explained the cause of the defect of vision by exhibiting a small dark growth about the size of a pea growing from the choroid, and pressing forwards the retina.

The method of dealing with orbital tumours which are either cancerous or of a recurrent nature by means of the chloride of zinc was first suggested and carried out by Mr. De Morgan* in 1864, in a man who was afflicted with a large recurrent encephaloid tumour in the orbit, which first originated in the eye. In April 1864, the man, on account of a cancerous growth within the globe, had the eye removed, but the disease began to reappear in the following month within the orbit, and continued to increase until the November of the same year, when he was admitted a patient of the Middlesex Hospital. The tumour was then of great dimensions, and presented a large fungating mass, which was exhausting the patient from continued bleeding and offensive discharge, and from severe and constant pain. This large cancerous growth Mr. De Morgan successfully removed by excision, and afterwards freely applying the chloride of zinc paste. The man recovered rapidly from the operation, and regained health and strength. He lived for one year and eight months after the operation, without any recurrence of the disease in the orbit, and died on July 11, 1866, from paraplegia, caused by an extension of the disease along the optic nerve and the formation of a cancerous tumour within the cranium.†

* 'Pathological Transactions,' vol. xvii. p. 265.

† A full account of the post-mortem examination of this patient is in the 'Pathological Transactions,' vol. xviii. p. 220.

II.—*Two Cases of Lupus Erythematosus, treated with Woodhall Water.* By T. W. Nunn. *Read October* 13, 1871.

OF these cases the first only is complete, the second being added by way of partial illustration.

Case I.

James A., jobmaster, æt 34, came under my observation in April 1870, presenting on the left side of his face a large patch of lupus erythematosus, the area of which was about the size of one's hand. It was generally red, and at parts the redness was more intense and coppery; here and there were superficial whitish cicatricial puckerings; the surface was flecked with pearly scales, the scales having a tendency to curl up and become detached at their edges. The groundwork, so to speak, of the patch, was formed of thin, tight, irritable-looking skin. The lobule of the ear was gone, destroyed either by atrophy or by ulceration. The destructive process, whichever it had been, had, however, stopped short of the cartilage of the pinna, which glistened through a semi-transparent cutis. At various distances around the margin of the patch the skin was a little raised, and the thin pearly scales were replaced by yellowish scabs; such scabs were besides to be met with within the area of the patch. The disfigurement was so considerable as to lead the patient to conceal it by a handkerchief, and the pain and irritation were severe. The patient gave the following history: When two years old he became covered with sores, supposed by his parents to be the result of what they called 'foul vaccination.'* After some months these sores disappeared, with the exception of one situated on the face and neck. This sore became the starting-point of the disease which continued to trouble him for the subsequent thirty-two years.

A little while previous to his coming under my notice his general health had failed, and the affected part of his face had become worse than ever.

To say nothing of the measures resorted to in the early

* On cross-examination of the patient's mother, it was evident that there was not the slightest ground for blaming the vaccination.

days of his suffering, the patient had during the immediately past ten or eleven years been under treatment either at the Hospital for Diseases of the Skin, Blackfriars, or more directly under the care of one of the Staff of that institution, and as well, latterly, under the care of another Dermatologist. It is necessary to mention this as proof that he had received treatment by trustworthy hands, and that all ordinary remedies, such as mercury, arsenic, iodine, &c., had been exhibited under skilled direction.

I commenced my treatment on April 13, 1870, with fumigations of cinnabar to the affected part. I prescribed thirty-grain doses of a mixture composed of one part of iodide of potassium and iodide of sodium in equal proportions to eight parts of chlorate of potash dissolved in water, to be taken three times a day, and a teaspoonful of cod-liver oil after each of the three daily meals.

The gums being habitually spongy, were ordered to be frequently brushed with a weak solution of chloride of zinc.

Improvement began to take place, but only attained such degree as had been reached on previous occasions; I then substituted in place of the fumigations and the mixed iodides single-grain doses of iodoform, to be taken three times a day; this was continued until 48 grains of iodoform had been used, without obvious effect.

I then ordered the juice of half a lemon to be taken in a tumblerful of new milk every morning, and a wineglassful of the so-called 'bromo-iodine' water of the Woodhall Spa* three times a day, enjoining the continuance of the cod-liver oil.

This line of treatment was diligently followed during three months, and in October I learnt that the patient was 'to all appearance cured.' He remained well until August (of this year) when one or two small spots returned, but which vanished after taking the Woodhall water for a short time.

* The proportion of the various constituents in one gallon of the Woodhall water has been reported by Mr. West, of Leeds, as follows:—

Chloride of Sodium	1,215·175
" Potassium	2·453
" Magnesium	86·146
" Calcium	105·001
Bromide of Sodium	5·145
Iodide of Sodium	2·731
Bi-carbonate of Soda	45·765
Carbonate of Lime	9·381
" Iron	0·277
Silica	0·339

I have examined the patient within this week, and find him well. I did not, myself, see the spots spoken of as having returned in August, but I assume we may take the patient's report as representing the truth.

I append the family history of the patient, although it affords only negative information. His father, æt. 72, and mother, æt. 61, are both living. The latter suffers, but not severely, from rheumatic gout in the hands. The patient is the third child of a family of sixteen. The eldest died æt. 8 years, of measles. The second child, four years older than the patient, is living and healthy; none of the others have shewn any signs of the disease. The females are not, however, strong.

The patient is married, has two children, the eldest of whom is 10 years, the youngest 6 years of age: both are healthy.

Case II.

The patient, a gentleman, 24 years of age, came under my observation in May last (1871). The erythematous patch was on the right side of the face. The disease commenced when he was 5 years old, and now occupies a space that would be about covered by the hand; there has been destruction of the integumentary structures of the pinna, the cartilage of the border of the helix shining through an almost transparent new cutis. He had been under the usual treatment, having had mercury, arsenic, iodine, and has undergone cauterisation. I ordered for this patient lemon-juice and milk in the morning, and Woodhall Spa water three times a day, as in the preceding case.

In consequence of the frequent interference with due regularity in taking the water by the active business engagements of the patient, the rules of treatment have not been hitherto punctually followed, nevertheless, material improvement has taken place; *the margins of the patch are no longer raised*, and no longer of a brighter red than the surface, while the scaliness has diminished and the tendency to form scabs has ceased. This patient has little or no beard, the natural skin of the rest of the face is thin, rather shiny and anæmic.

Again the family history affords no distinct clue to the etiology of this disease. The patient is the third of a family of eleven, six of whom are living besides the patient, namely, five sisters, all healthy; one brother, rather delicate. His

father is living, æt. 70, suffering somewhat from gout; his mother died æt. 48 of phthisis. The patient married when only 20 years old; he has one child 15 months old, which has shewn no signs of unhealthiness.

I have adopted the term Lupus Erythematosus from Mr. Erasmus Wilson, as the better name to distinguish this form of skin disease. It appears to me to be essentially an *inflammatory atrophy* of the cutis.

Mr. J. L. Milton, in his pamphlet on 'The Treatment of Lupus,' published in 1866, says that he follows 'the divisions of Copland, who distinguishes the superficial form beginning without the real tubercle from the two tubercular forms,' as offering 'a convenient practical arrangement;' and he further says, 'The descriptions given of lupus afford a startling proof of the inability of any writer, however lucid his style may be, to pourtray some diseases of the skin. Were a person unacquainted with medicine to read the accounts of different authors, he might well think that, *but for the name,* he was going through descriptions of different diseases.'

I think it is a question whether the disease known as superficial lupus, or lupus erythematosus, which appears to confine itself to the skin, is really a variety of that disease, which is capable of involving every tissue in indiscriminate destruction.

One or two words in conclusion, explanatory of my treatment. I use lemon-juice with milk as an adjunct to, and as a substitute for cod-liver oil. The lemon-juice neutralises the alkalinity of the milk, and often enables the patient to take milk when it would otherwise prove indigestible.

I know of nothing more effective for correcting an inflamed and spongy state of the gums than chloride of zinc. I believe it acts by combining with, and thereby preventing the decomposition of, the albuminous element of the saliva and buccal mucus, and thus relieves the inflamed structure from irritation, precisely as an inflamed bladder is relieved when the decomposition of the urine within it is prevented.

As regards the mineral water of the Woodhall Spa, I am disposed to think that in certain cases of strumous and syphilitic disease it is really valuable.

III.—*Cases of Partial and General Idiopathic Pericarditis.* By Dr. Christian Bäumler. *Read October* 13, 1871.

THE common occurrence on the pericardium of anatomical changes which in many cases can hardly be looked upon as anything but the remnants of previous acute inflammation, is in striking contrast to the comparative rarity with which pericarditis is met with clinically. It is very likely that pericarditis is too generally considered as a disease with such striking and serious features that the possibility of its occurring with more trifling and indistinct symptoms is not sufficiently realised. May not thus, to a certain extent, be explained why the majority of pathologists are so reluctant to regard the milky spots so frequently met with on the surface of the heart as the results of inflammation? Yet even general pericarditis may clinically quite escape the notice of the physician. There may be an entire absence of well-marked symptoms pointing to the pericardium, and cases will be in the recollection of all in which recent pericarditis was found post-mortem where it had never been suspected during life. It is true, these are mostly cases in which the pericarditis has been the terminal complication of another serious disease, but we meet also now and then, and not very rarely, at a post-mortem examination with complete adhesion of the pericardium where nothing in the well-ascertained history of the case would have led to the supposition that there had ever been an attack of pericarditis. Now, if this occurs with general pericarditis, how much more easily will it be the case with partial pericarditis, the remnants of which we find in those famous white spots?

Although I am not yet prepared to go quite as far as Sir James Paget,* who, by his anatomical investigations, was led to regard those white spots 'in all cases as the result of pericarditis,' I fully believe with him, in 'a far greater frequency of that disease than has been generally imagined.' As I am not aware that the clinical history of such 'partial pericarditis' has ever been given before, I intend in this

* 'Medico-Chir. Transactions,' vol. xxiii. p. 30.

paper to relate several cases which have come under my observation, and which, I think, will prove the occurrence of very transient, but not the less well-marked, forms of pericarditis. I have no doubt that the transitory, and it may be in some instances also the trifling, nature of the symptoms is the cause that such cases do not come almost as frequently under the notice of the physician as the white spots come under that of the pathologist. The case is somewhat analogous with pleuritic adhesions, which also are found very commonly at post-mortem examinations, without any previous history of pleurisy. Nobody doubts their inflammatory origin; yet even with the white spots of the pericardium Sir James Paget has found almost constantly to coincide 'some adhesion, by organised lymph, between adjacent parts of the pericardial membrane.' That pleurisy, even of very limited extent, leads to adhesion, while partial pericarditis only results in most cases in a smooth white thickening, obviously depends upon the different degree of locomotion to which a given point of the serous membrane is subject in the two localities; adhesion being facilitated in the pleura by the same points of the opposite surfaces remaining longer in contact with each other, while in the pericardium, unless the inflamed surfaces have some considerable extension, any adhesions which may form are constantly broken again by the quick movement of the heart.

Most pathologists believe that the white spots on the surface of the right ventricle are due to constant pressure and friction without the aid of inflammatory action. But even if we concede that the white spots are not in all cases the result of acute inflammation, it is very unlikely that even in those cases in which they are due to some chronic irritation, increased vascularity and exudation of lymph, i.e., signs of inflammation, should not precede the milky opacity, just as in pannus of the cornea from the pressure and friction of granular lids vascularity of the margin of the cornea always coincides with the active stage which, as it terminates, leaves a permanent opacity.

I will first relate two cases of very transient pericarditis, then a case where the affection was more intense, and therefore probably more extensive, yet of comparatively short duration, and not accompanied by any serious symptoms. The two first cases were quite free from any symptoms of rheumatism, and may be fairly set down as examples of primary idiopathic pericarditis. Most writers consider this as

of very rare occurrence. Thus, Dr. Walshe* says, 'pericarditis is rarely, if ever, an isolated disease.' Friedreich,† who has only seen two cases, quotes Bamberger with 5 cases out of 63, and Duchek with only one out of 89. My experience would lead me to believe in a much greater frequency of such an occurrence; and I have appended three more cases which were probably of that nature. In these cases, during apparently good health, severe general pericarditis occurred, and ran its course without any rheumatic symptoms. The four last cases may also serve as good examples of the insidious manner in which pericarditis sometimes makes its appearance.

CASE I.—*Pericarditis coming on suddenly with well-marked symptoms. Loud friction-sound. Slight elevation of temperature. Duration of the whole attack four days.*

Mr. J. M., æt. about 37, a gentleman engaged in the city, had for some years past repeatedly been under my care with catarrh of the pharynx and the larger air-passages. During the summer of 1869 he had caught whooping-cough, which, when I saw him last at the end of October, had not yet quite disappeared. He came to my house on the evening of November 20, 1869, apparently very ill. He stated that he had been in his usual health on the previous day; that he had worked at home until a late hour and had not felt in the least unwell until about 3 o'clock in the afternoon, when he suddenly felt a pain in the epigastrium, which very much increased with every inspiration as well as with every movement, and especially on leaning forward. He appeared to be exceedingly ill, hardly able to walk for pain and dyspnœa; his features were pinched, his hands cold, and the pulse very small but regular, making 92 beats. I immediately injected 1-16th of a grain of morphia subcutaneously, when the distress somewhat subsided, and the pulse became somewhat fuller, remaining, however, at the same rate. The epigastric region was tender on pressure but not swelled or hard, and the physical examination of the heart and lungs did not reveal anything abnormal in explanation of the symptoms. The sounds of the heart were specially noticed to be quite normal. I ordered him complete rest in bed, a

* Dr. Walshe, 'Diseases of the Heart.' 3rd edit. 1862, p. 214.

† Dr. N. Friedreich, 'Krankheiten des Herzens.' Virchow's 'Handbuch der speciellen Pathol. u. Therapie.' 2. Aufl. Erlangen, 1867, p. 109.

poultice to the epigastric region, and an alkaline mixture with some aromatic spirits of ammonia.

At 10 P.M. I saw the patient again at his own house in bed; the pain had then somewhat subsided, and he felt tolerably comfortable. His pulse was regular, 96 per minute, the respiration 28, the temperature in the axilla about 100° F. (99·6° after 5 minutes). On placing the stethoscope on the cardiac region my ear was at once struck by a particularly harsh pericardial friction-sound over the middle and at the left border of the sternum. The heart's dullness was not enlarged, reaching upwards only to the fourth left costal cartilage.

Nov. 21—10 A.M.—P. 86, R. 24, T. 99°. During the first part of the night, until about 2 A.M., the pain had somewhat increased, but was afterwards much relieved by the application of a mustard-poultice; the rest of the night was passed sleeping. There had also been during the night some pains in the left acromial region. At present there is but little pain, but it increases on deep inspiration. The dullness in the cardiac region is not larger than last night, and the apex of the heart can be felt beating. The pericardial friction-sound is less harsh, not so well marked as last night, and confined to the middle of the sternum. It disappeared altogether during my visit after a few strong fits of coughing. Tongue somewhat coated.

At 9.45 P.M.—P. 88, quite regular; R. 22, T. 100·05°. The pain in the chest has quite disappeared, and is not even brought on any more by deep inspiration or coughing, but during the afternoon there had been much pain in the left shoulder, and from there to the left ear and down to the left elbow. On pressure there is some tenderness about the left shoulder, especially in front of the joint. The friction-sound can no more be heard, nor does it re-appear on pressing the sternum well down with the stethoscope. Tongue cleaner.

22—2 P.M.—P. 76, R. 20, T. 98·8°. Has passed a good night. There is no more pain, not even on pressing down the sternum, nor is there any in the shoulder. He perspired rather freely during the night. Urine somewhat high coloured, clear, without albumen. No abnormal sounds can be heard about the heart.

23—5 P.M.—P. 68, R. 20, T. 99·3°. He had not slept so well in the night, probably on account of profuse perspiration being brought on by too heavy covering (five blankets). The

pain has nowhere returned, and nothing whatever abnormal can be found by stethoscopic examination. The poultice has been left off since the morning.

24—2.30 P.M.—P. 68, T. 98·95°. Had some pain in the back this morning which, however, soon disappeared.

25—7 P.M.—P. 68, T. 98·95°. Has been up in the afternoon, and feels quite well.

27—9.30 A.M.—P. 66. Had a little pain along the left arm. This pain did not continue, and Mr. M. could soon go to business again, his general health being excellent and no further local symptoms appearing. I have since had repeated opportunities for examining his heart, and at no time could I detect anything abnormal.

Remarks.—I believe there can be no doubt that in this case the pericarditis was of as limited as it was of a transient character, for not only did the symptoms indicating a roughness on the pericardium hardly persist for twenty-four hours, but also the general disturbance caused by the disease was very slight and lasted only two days, the temperature hardly exceeding 100°. Nevertheless, the symptoms were so marked that there cannot be any doubt as to the nature of the affection. There was local pain; there was dyspnœa from pain in the diaphragm, and not even the pain in the left shoulder, so common in pericarditis, was absent. This pain in the left shoulder might be looked upon as rheumatic, and such an explanation might find some support in the tenderness produced by pressing on the joint; but its radiating character from the acromion upwards to the left ear and down to the elbow, sufficiently mark it as 'neuralgic.' The phrenic nerve, from which some small fibres go to the pericardium, is probably the path along which the excitation is transmitted to those branches of the fourth cervical nerve which supply the acromial region.*

The course taken by this form of partial pericarditis was almost identical in the following instance, of which I can give the symptoms the more completely as I have myself been the subject of this observation.

CASE II.—*Partial pericarditis in a healthy young man, aged 25. Slight friction perceptible to the patient himself. Absence of rheumatic symptoms. Duration four days.*

On the morning of January 14, 1862, having felt perfectly well on the previous evening, I woke about 4 o'clock with a

* Vide Luschka, Die Anatomie des Menschen, I. 2, p. 220.

most disagreeable feeling of tension along the left side of the sternum and the adjoining region, a slight pain in the left shoulder and down to the left elbow. The respiratory movements were quite free, the heart was beating at the rate of about 60 per minute, headache or other symptoms of a general disturbance were absent. The pain gradually increasing I was kept awake, and after a while there was superadded with every inspiration a dull pain in the epigastric region and right through the chest from the apex of the heart to the right side of the spinal column at the height of the spina scapulæ. Any deeper inspiration caused the pain much to increase, and soon afterwards it was also felt with every beat of the heart, accompanied by a synchronous painful sensation in the left side of the larynx. The least movement in bed increased this pain by accelerating the heart's action, and as the respiration had, for the same reason, to be carried on as slowly and superficially as possible, a certain amount of dyspnœa was the consequence. On getting out of bed and walking a few steps pain and dyspnœa became distressing.

These symptoms having come on within an hour-and-a-half, in accidentally turning over on my right side, whereby the heart's action became accelerated, I felt a distinct to-and-fro rubbing below the portion of the sternum adjoining the third right intercostal space. This rubbing sensation which, after having once been felt, persisted also in the recumbent position, lasted for about half-an-hour, when it disappeared. The pulse had in the mean time risen to about 80 beats; for a short time there was a very slight shivering sensation, and trifling headache followed. Dr. Deininger, my clinical colleague, convinced himself of the presence of a slight friction-sound in the above-indicated locality. In the evening the subjective sensation of rubbing re-appeared behind the sternum between the fourth intercostal spaces, and a friction-sound was then also distinctly heard by Professor Kussmaul, who attended me, and who in the morning had failed to hear it. There was no increase of the area of dullness in the cardiac region.

The painful sensations persisted in a slight degree all day long, and there appeared some trifling febrile disturbance towards evening, but no thermometrical observations were made. The treatment since the morning consisted in perfect rest in bed, the application of an ice-bag to the cardiac region, and the taking of infusion of digitalis, ℥ss. every two hours.

During the night, which was rather restless, the pain somewhat subsided, and, although the symptoms increased again towards the evening of January 15, no more friction-sound could be heard or rubbing felt, nor was there any alteration in the area of dullness.

The pain entirely disappeared during the two following days, but at times there appeared a sharp pain of short duration in the right side of the back, between the eleventh and twelfth rib, chiefly caused by deep inspiration or rapid movements towards the right side. This pain also disappeared by January 19.

The ice-bag had been continuously applied until the evening of the 16th, and the infusion of 30 grains of digitalis altogether had been taken.

The irritability of the heart had subsided with the pain, and I was soon able to go about, and returned to my duties within a fortnight from the commencement of the attack. I have never had any symptoms on the part of the heart since, and I may also mention that I have never had articular rheumatism, although, since in England, I have once or twice suffered from muscular rheumatism.

Regarding the causation of this attack, I cannot refer it to anything in particular, if it was not, perhaps, walking about in the wet all the afternoon two days previously, and sleeping in a very cold bed-room on the ground floor. The weather had been very wet through thawing of the snow on the 12th; on the 13th it suddenly became very cold again.

Remarks.—The similarity of the two preceding cases is striking both through the rapidity of the onset, as with regard to the symptoms and the shortness of their duration. The friction-sound was in the second case limited to the locality which shows the greatest predilection for the white spot. But limited as in this case the inflammation of the pericardium no doubt was, there was a painful sensation referable to the whole surface of that membrane, caused probably by the transitory disturbance which the circulation of the whole pericardium temporarily had to undergo when part of it, small as it was, became inflamed.

I have quite recently had an opportunity of observing the same train of symptoms in a somewhat more prolonged, but still rather mild, case of pericarditis, and I will, although it was not a case of idiopathic pericarditis, here give its history as that of an intermediate form between the very slight cases

such as the two previous ones, and that form in which pericarditis most frequently comes under our observation.

Case III.—*Valvular disease of the heart, probably of some standing. Pericarditis with some fluid effusion and well-marked friction-sound. Pains in various joints. Very slight febrile disturbance. Duration about a fortnight.*

Mr. H., tall, fair, well nourished, age 37, came under my care on April 13, 1871. Ten years ago he had had syphilis, and since then he has occasionally suffered from rheumatic pains in various joints without swelling, but never from any attack of acute rheumatism.

For the last four or five days he had felt a pain across the middle of his chest which made it difficult for him to breathe. There was also a short hacking cough, and a feeling of pressure or suffocation in the jugular fossa, but no palpitation. He had with difficulty been able to do his business on the 13th, and at 7 P.M., when he came to seek my advice, I found him distressed-looking, short of breath, his pulse 112, the respiration 32, the temperature below the tongue over 100·5°. Lungs quite normal. Area of heart's dullness commencing at the third left costal cartilage, reaching in its greatest transverse diameter from half-an-inch beyond the left mammary line to half-an-inch beyond the right border of the sternum. No impulse of the apex of the heart could be felt even when the patient was standing. There was a loud endocardial murmur following closely upon the first sound in the region of the apex; above the fourth left costal cartilage the sounds were quite clean, the second one rather more accentuated. I had a strong suspicion of pericarditis, and ordered perfect rest in bed, a mustard-poultice to the chest, and the following mixture:—

Aquæ Laurocerasi. Tr. Digital. aa ʒii. Sodæ Bicarbon. ℥ss. Infus. Quassiæ ℥i. Aquæ ad ℥viii.
Ms. Sumat ℥ss. 4tis horis.

Apr. 14—3 P.M.—P. 88, R. 32, T. 99·0° (axilla).—The pain became somewhat relieved by the mustard-poultice; still the night was rather restless, as he could not lie down for a sensation of oppression in the throat. At present the pain is less, and when lying quite still, with his back well raised, he feels quite comfortable; lying down lower at once produces a suffocating sensation in the throat. The pulse is perfectly regular. No apex beat can be felt. There is now a distinct

but feeble double pericardial rub audible over the whole of the cardiac region, but the sounds and the systolic murmur can be well distinguished besides. He also complains of pains in both wrists, across the insteps, and in the elbows. There is no pain in the left shoulder, but below both clavicles. No perspiration.

16—5.15 P.M.—P. 78, R. 28, T. 99·15°.—Feels better. The apex of the heart can now be slightly felt beating in the mammary line. Pericardial friction-sound very harsh, loudest over the sternum and along its left border between the third and fifth rib. The dullness only commences at the fourth costal cartilage. Urine clear. Tongue very little coated, pale, and somewhat cyanotic.

18—7.30 P.M.—P. 92, R. 28, T. 100·6°.—Feels very well generally, so that he has been sitting up for some time today. On lying down there is still a painful feeling of pulsation and suffocation in the jugular fossa. The physical signs are exactly the same as on the 16th. Urine clear, somewhat high coloured, free from albumen. There is still some slight pain in the wrists. Since yesterday morning he took sodæ bicarb. ʒj, 4 ter die.

Ordered: A blister to the cardiac region;

Tr. Digitalis, ♏x. with each dose of the soda.

20—7 P.M.—P. 108, R. 32, T. 101·3°.—No alteration in the physical signs. Urine very high coloured. The blister has not drawn much. Feels rather better generally.

Ordered: To continue the medicine and to take besides:

Quin. Sulph. gr. iii. bis die.

22—6.10 P.M.—P. 92, R. 28, T. 100·4°.—There is a considerable improvement since last visit. He breathes more freely, and can lie down better. No more friction sound can be heard, but the systolic murmur persists as before. There is a pain down the left arm and in the left side; but no abnormal stethoscopical signs on the spot indicated. Urine alkaline.

Ordered: To continue the same, but the Tr. Digit. 3 times only in the day.

25—6 P.M.—P. 68, R. 24, T. 98·4°.—Feels very well. Area of dullness in cardiac region appears to have still more diminished. There is no friction-sound.

Ordered: To continue the soda and quinine.

28.—6 P.M.—P. 72.—Had been unavoidably obliged to go to the city this morning. Feels rather weak, but otherwise quite well. Appetite very good. Sleeps well, and can lie

down quite flat. There is no dyspnœa. A little pain in the left side and in the left shoulder still persists; the pain in the joints has entirely disappeared. Tongue quite clean, and of a natural appearance, having lost the cyanotic colour which it presented all along.

Ordered: Ferr. et quin. citr. gr. 40.
Sodæ bicarb. ℥ss.
Infus. quassiæ, ℥j.
Aquæ ad ℥viij.
Ms. ℥j. ter die.

Unfortunately, the patient could not keep so quiet as he ought to have done. He remained well until May 2, when he began to feel severe pains in the neck and shoulders, but chiefly in the occipital region; any movement of the head caused great pain, and on the 4th of May deglutition also became very painful. Faradisation of the muscles of the neck somewhat relieved the pain, but only for a time. There was no alteration in the physical signs at the heart, but the pulse was somewhat accelerated, being 92 at 11 A.M. on May 4, the temperature at the same time being 99·3° (under the tongue).

Ordered: To keep perfectly quiet, and to take Quin. Sulph. gr. iii. ter die.

May 5.—The pain has still more increased, and kept him awake in the night; the left arm also is very painful. Deglutition more difficult from pain. P. 120. It occurred to me whether this pain might not be of a similar origin to the pain in the left shoulder so common in pericarditis, and caused by the irritation of the terminal pericardial branches of the vagus and the phrenic nerves being transmitted to various branches of the cervical nerves, the accessorius Willisii, vagus and glosso-pharyngeus. Acting on this idea, I ordered complete rest, a belladonna plaster on the left shoulder, and to take Tr. Digit. ♏x. with each dose of the quinine. The pain had almost disappeared on the evening of May 6, and Mr. H. was able to go to town again on the 8th.

The following three cases bear great resemblance to each other in the very insidious manner in which general pericarditis came on; in the entire absence of rheumatic symptoms in the joints; and in the circumstance that all three patients were children between 8 and 10 years of age.

CASE IV.—*General pericarditis without rheumatic symptoms. Considerable effusion. Recovery from pericarditis. Mitral, and later on aortic regurgitation.*

S. S., a little girl 8 years old, the child of a consumptive father and a healthy mother, was sent to me by Dr. Weil, about the middle of November 1867. The mother stated that the child, who had previously enjoyed good health, had not been well the last three weeks, that the illness commenced with pain in the throat and left arm, to which afterwards came pain in the chest and palpitation of the heart. There had not been any complaints about any joint, and, as far as the mother could tell, the child had never had rheumatism. Out of the three weeks of her illness she was confined to her bed for a week, and had been rather feverish.

When I first saw the child her appearance did not convey the impression of the serious illness she was then suffering from, and, although she had walked to my house, there was no particular dyspnœa. Yet there were all the signs of pericarditis, with much fluid effusion: the region of the heart somewhat prominent; dullness from the left sterno-clavicular joint downwards, the limits of the area of dullness reaching beyond the papilla mammæ on the left, and to half-an-inch beyond the right border of the sternum on the right side; a loud pericardial friction-sound over the whole area of dullness; the heart's sounds muffled; lungs and pleuræ were free. The jugular veins were distended and undulating. Dr. Weil continued to attend her, and she took the Syr. ferri. iodidi.

I saw this patient again on December 19, and she then said she felt very well, a statement with which her general appearance perfectly agreed. The jugular veins were no more distended. The heart's dullness commenced at the second left costal cartilage. There was no more friction-sound, but at the apex a long systolic murmur could be heard; the second sound over the pulmonary artery was more marked. P. 80, quite regular.

She continued to remain well, and at the end of May 1869, when I had an opportunity of examining her again, no change had taken place in the state of the heart beyond slight hypertrophy of the left ventricle.

In the early part of 1871 fresh disturbances came on, consisting in dyspnœa and headache on lying down. There was

then great acceleration of the heart's action, and a diastolic basis murmur could now be heard, besides the systolic one at the apex. The heart's dullness began at the third costal cartilage, reached to the left mammary line below the papilla, and to the middle of the sternum on the right. The apex beat was strongly heaving. Her general health was scarcely affected; her appetite was good; there was no dyspnœa on standing or walking quickly, no cough, no cyanosis, and no pain in the limbs. On February 18 I found her temperature to be 99·5 under the tongue, pulse 144, respiration 28. She took digitalis with sodæ bicarb. for a fortnight, when her pulse and temperature had come down to 120 and 98° respectively. By the end of February the subjective symptoms had disappeared, the physical signs of mitral and aortic regurgitation remaining the same.

CASE V.—*Pericarditis, with much fluid effusion. No rheumatism. Very mild symptoms in the beginning. Death in the third week from the commencement of illness.*

E. A., a girl 10 years of age, was brought to the German Hospital as out-patient on May 27, 1867. Her mother stated she had not been quite well for the last ten or twelve days. Her chief complaint had been of feeling tired, and, although she had the greatest inclination for lying down, her mother encouraged her to walk about. She had walked to the hospital, a distance of nearly a mile.

There were all the signs of pericarditis, the dullness reaching to the incisura jugularis, and a loud friction-sound being audible. She could not be taken into the hospital, and was advised to have medical attendance at home. The mother informed me that she died a week afterwards.

A very similar case, but happily with a more favourable termination, is the following:

CASE VI.—*Pericarditis, with much fluid effusion. No rheumatic symptoms. Dropsical symptoms some weeks afterwards. Complete recovery.*

A. W., a girl aged 10 years, came to the Victoria Park Hospital as an out-patient on April 27, 1869.

In August 1868, she had had a very mild attack of scarlatina, from which she completely recovered without any dropsical symptoms making their appearance. About the

middle of March she began to cough as if from a severe cold, and a fortnight afterwards she kept her bed, but only for two days. She did not, however, regain her appetite, and remained pale and weak; but she was up every day, and had walked to the hospital.

She was very pale, and her face had a peculiar grey colour. There was no particular shortness of breath, her only complaint being pain in the middle of the chest. She distinctly denied having ever had, during her illness, any pain in the joints, and the mother, particularly questioned upon this point, says the child never complained of any such pains. There was dullness on the chest of the shape which is characteristic for considerable pericardial effusion. The apex of the heart could not be distinctly felt. The heart's sounds were very feebly transmitted, and just over the middle of the sternum and somewhat towards the left, a loud grating friction-sound could be heard. Over the base of the left lung there were sibilant râles, and the inspiration was accompanied by subcrepitant râles. The temperature appeared to be somewhat raised.

On the following day, April 28, I saw her at home in bed. At 2.30 P.M. P. 132, R. 32, T. 100·4°.

She had passed a good night, and did not feel particularly ill. There still was the pain in the chest, and the pericardial symptoms had remained the same, but the râles at the base of the left lung had disappeared. Urine clear, light coloured, spec. grav. = 1018, quite free from albumen.

She kept her bed for three weeks, and was attended by Mr. Th. G. Simpson, of the Hackney Road. During this time she gradually got stronger, and was then sent into the country. While there, a few weeks afterwards, she became dropsical, but gradually got well again, and returned home at Christmas (1869). Since that time she has remained quite well, and when I saw her on March 11, 1871, nothing indicated that she had passed through a severe attack of pericarditis two years previously. Her pulse was quite regular, and the heart's sounds perfectly normal. She was grown much and well developed for her age, but rather pale.

From the above cases I believe I am justified in drawing the following conclusions:

1. Pericarditis may occur on a very limited part of the pericardial surface. Such partial pericarditis generally passes off in a few days, well-marked symptoms being only present for a short time.

2. The chief symptoms of such cases are: pain in the præcordial region, difficulty of breathing through the pain, and irradiated pains in the throat, neck, left shoulder, and left arm. The heart's action is accelerated, and becomes much more easily affected than in health by even slight muscular action; the temperature of the body is only slightly raised; there is a well-marked friction-sound, giving evidence of a roughness of the membrane, and probably of some fibrinous exudation, but there are no signs of a fluid effusion, of which probably, if any, a very small amount only is present.

3. The intensity of the subjective symptoms, especially at the outset, is not proportionate to the extent of the disease. An attack passing off in three days may commence with very alarming symptoms, and, on the other hand, general pericarditis, leading to profuse fluid and fibrinous effusion, may gradually come on with very inconsiderable suffering to the patient. Cases of the latter kind do not unfrequently occur in children, and their complaints being rather indefinite, the disease may be entirely overlooked. An examination of the chest will, of course, in most cases prevent such an oversight.

4. It is very likely that many cases of so-called "white spot" of the heart have a clinical history like that of the two first cases, but the symptoms not being so well marked in all cases, and being very transitory, they soon pass out of the recollection of the patients, and, for the same reasons, they come but rarely under medical observation.

5. Pericarditis sometimes occurs quite independently of any other, either general or local, affection, and without any symptoms of rheumatism (idiopathic pericarditis).

6. With regard to treatment, I believe that in cases of partial pericarditis, rest alone is quite sufficient for the cure of the disease. If there be any considerable increase in the frequency of the heart's action the continuous application of an ice-bag and internally the use of digitalis would probably be the most rational treatment to adopt. The ice acts by not only diminishing the frequency of the heart's action, but also by relieving the pain. For these reasons its use is also warmly recommended by Friedreich. When ice cannot be had, or difficulties arise as to its proper management, a warm linseed-meal poultice or a mustard-plaister may also be useful in relieving the distress from pain. A blister will have the same effect, but it must not be overlooked that it may act as a cause of irritation until it is healed, and that

thereby the heart's action may be accelerated. Where ice is to be had and can be properly managed I should much prefer its use to a blister. I can affirm from personal experience that the ice-bag, when properly managed, does not cause any inconvenience, and that especially no sensation of cold is felt at all after a little while, and I can also say that I have used it in several cases of severe rheumatic pericarditis with good results.

IV.—*A Case of very extensive Rodent Cancer of the Face extirpated by excision and cauterisation.* By J. W. Hulke. *Read October* 27, 1871.

A DESIRE to see effectual relief more generally extended to a class of sufferers whose malady in its advanced stages is still regarded by many surgeons as beyond the reach of surgery, is my apology for bringing under the Society's notice to-night a patient in whom I have extirpated one of the largest rodent cancers of the face which has for a long time come under my care, by a combination of excision and cauterisation, a plan very successfully practised by my former colleague, the late Mr. Chas. Moore, whose remarkable cases, published shortly before his death, have not, I think, attracted the attention they deserve.

A blacksmith, æt. 49, a thin, spare man, badly fed and given to drink, was admitted into the Middlesex Hospital in May 1869, with a rodent cancer of the face, which had eaten away the entire lower eyelid and part of the upper one, invaded the orbit and destroyed the eyeball, and opened the frontal sinus and the nasal passages. The outline of this large ulcer was very irregular, broken by excursions and indents. Its edge, in some parts undermined and overhanging, in other places slightly uneven and knotty, was everywhere indurated for a breadth of about two lines. The base was similarly indurated: it bore a few small groups of little wart-like granulations.

The discharge from the ulcer was scanty, a thin ichor rather than pus. He suffered great pain in those regions

of the forehead and temple innervated by transorbital branches of the fifth cranial nerve. The next lymphatic glands were not enlarged, no secondary tumours were discoverable in other parts of the body, and the condition known as the cancerous cachexia was wholly absent.

He said that the sore began as a pimple on the lower eyelid, which he attributed to a blow from a piece of iron. This was burned with caustic. The wound healed, but the scar soon broke and ulcerated.

On the 10th of June the entire indurated border of the ulcer, comprising the remnant of the upper eyelid with a broad margin of healthy skin, and the base, were cut away with a scalpel, the exposed bony surfaces were burned with the actual cautery, and when the hæmorrhage had entirely ceased, the whole wound was coated with an escharotic paste of chloride of zinc, spread upon small pieces of lint. The hollow was then filled with a ball of cotton-wool, kept in place by a few turns of a roller.

During the first twenty-four hours after the operation, he was sick several times (I attributed this to the chloroform, of which he had taken a large quantity, as the operation was a protracted one), and he suffered considerable pain, which was effectually relieved by the hypodermic injection of morphia. A moderate degree of fever followed, which

abated after the fourth evening, and had nearly disappeared at the end of the week. The eschar, a dry, bark-like crust, separated slowly, and by the time it was sufficiently loose to be lifted away without violence with a forceps, the edge of the wound had scarred, and its area was greatly diminished. Several pieces of the orbit exfoliated; the last and largest sequestrum was shed on August 29, uncovering at the lower and temporal side of the hollow, once the orbit, a suspicious button of prominent granulations. The rest of the surface appeared healthy. The granulation button was coated with caustic zinc paste. A few days later, during my absence from town, and before the small eschar had fallen, he was summarily dismissed for misconduct.

I did not see him again till last August, when he returned to the hospital in a very wretched, half-starved condition. The site of the former ulcer appeared healthy, except at two small points, where there were small suspicious upgrowths of about the extent of a silver 3d. The zinc paste was applied to these, the small eschars fell, leaving healthy-looking wounds which cicatrized quickly, and now the entire site of the ulcer seemed perfectly healthy. Where the orbit once was is a great hollow, at the bottom of which are the left middle and lower turbinated bones, and openings leading into the left antrum, the frontal sinuses and both right and left nasal passages, all lined with healthy mucous membrane, and soundly scarred.

The upgrowth in August 1870 doubtless originated in a small remnant of cancerous tissue which had escaped destruction, and the second one for which he returned to the hospital this year no doubt had a similar origin. It is quite possible that there may still be a repetition of this. But these beginnings are easily checked and destroyed with little risk, and with much greater certainty than the original ulcer.

All surgeons, with scarcely an exception, are, I believe, agreed upon the propriety of extirpating with knife or caustic the sore known under the names of Jacob's Ulcer, Cancroid Ulcer, Rodent Ulcer, Rodent Cancer, when its superficial extent is not very large, when it is restricted to the skin, and when it has not extended into the mouth, the nose, or orbit. But when the ulcer has spread into one of those cavities, when it has eroded the bones, and when it has attained considerable superficial dimensions, then, if any concurrence of opinion exist, it inclines, I think, towards

non-interference. This is much to be regretted, for even in very advanced stages there are cases, such as the present one, which are really less desperate than they appear on a cursory examination, and where surgery can do a great deal.

The chief objections which I have heard advanced against the practice we advocate are its great immediate danger, and the uncertainty of a complete eradication of the ulcer, with the prospect of its speedy recurrence. These objections have not, I think, grown out of experience. The direct danger is twofold: that which is common to every large operation performed on a person in the decline of life, and that which arises from the situation of the ulcer. Now, the experience of a not inconsiderable number of cases treated in the Middlesex Hospital by my colleagues and myself, has shown that the first may be much reduced if care is taken to avoid any unnecessary hæmorrhage, if the suppurating edges of the wound during the detachment of the eschar, and its surface after this has fallen off, are kept scrupulously clean and sweet with an antiseptic dressing; and lastly, but not least, if the patient's strength is judiciously supported, and pain kept down with opium. As regards the dangers which arise from the situation of the ulcer, these are of course greatest when the orbit is implicated, owing to the nearness of the brain. Yet even here experience has proved that both the actual cautery and the caustic zinc may be used safely if due care is taken, for the hot iron applied to the surface of a bone kills it much less deeply than any person who has never used it would be disposed to believe, and the chloride of zinc paste is one of the most manageable of escharotics, contrasting in this respect most strongly with potassa fusa and potassa cum calce, so that it has been safely applied to the roof of the orbit when the dura mater was already exposed.

The other objection holds good against every operation for cancer, and therefore need not be met here, only as against operations in rodent cancer its force is much lessened by the absence of glandular infection, and commonly of discontinuous knots, and by the strict limitation of the heterologous tissue, which constitutes the essential part of the malady, to the immediate circumference of the ulcer, circumstances more favourable to a complete eradication than those obtaining in other forms of cancer occurring in other parts of the body.

V.—*Case of Rodent Cancer involving the right upper eyelid, and extending into the orbit and on to the nose, treated successfully by excision and caustics.* By George Lawson. *Read October* 27, 1871.

SARAH I., æt. 62, a laundress, unmarried, of a healthy family with no history of cancer, was admitted into the Middlesex Hospital on June 8, 1870, suffering from a rodent cancerous ulceration, which had originated about eight months previously in the left upper eyelid, and had during the last few weeks extended rapidly on to the side of the upper part of the nose, and down to the inner bony wall of the orbit. The margin of the wound was thickened; there were no glandular enlargements. The eye was perfectly healthy. Being anxious to save the eye, if possible, I removed all the diseased structures with a scalpel, and afterwards applied the potassa cum calce to the exposed surface. The patient progressed favourably for a time, but before the wound was closed, suspicious-looking granulations again began to grow, and to these I applied an ointment made with the dried sulphate of zinc. Under this treatment the wound assumed a healthy action, and the patient left the hospital at her own request, before cicatrization was completed. For some months I entirely lost sight of her, but from her account, the wound never entirely healed, and when she came to show herself to me, there was still a small unhealthy-looking sore at the inner angle of the eye, from which there was a continuous discharge. The rest of the wound was cicatrized, but owing to the contraction of the parts the portion of the upper eyelid which had been left was so tightly drawn over the eye as to exclude it from view and render it useless. The patient, however, refused to submit to any further treatment until June 27, 1871, when, on account of the rapid spread of the disease, she was willing to place herself entirely in my hands. She had now a deep excavated ulcer on the inner side of the orbit, which encroached upon the remains of the upper lid, and on to the side of the nose. It frequently bled, and discharged a fœtid-smelling pus. The eye was hidden from view by the lid being drawn over it. As it was impossible to deal efficiently with the disease without sacrificing the eye, I excised the globe, and then

thoroughly removed with a scalpel all the diseased tissues, and having arrested all hæmorrhage with the actual cautery, freely applied the chloride of zinc paste spread on pieces of lint. A layer of cotton-wool was then laid over the parts, and a turn of a bandage kept the whole *in situ.* The patient suffered but slightly from this treatment. Large sloughs came away, and portions of the bony walls of the orbit exfoliated, and ultimately the granulating surface of the wound cicatrized.

The patient is here to-day for examination. There is it is true a large gap, showing the upper portion of the nasal cavity, and some of the ethmoidal and frontal cells; but all the disease has been removed, and from what I have seen of such cases there is reason to hope there will never be a recurrence of the cancerous ulceration.

VI.—*Three Cases of Rapid Contraction of Cavities in Phthisis (Caseous pneumonia).* By Dr. C. Theodore Williams. *Read October* 27, 1871.

THE subject of contraction of cavities, and of the various modes in which this process takes place, is of great interest, and as it has not, so far as I am aware, been brought before this Society, I have taken the opportunity afforded by some well-marked instances in my practice to propose its discussion. It will be impossible for me, in the short communication which the rules of the Society enjoin, to enter upon all the bearings of the subject. I must therefore restrict myself to relating three cases of rather rapid contraction of cavities, appending a few remarks on them.

Case I.

Caroline K., aged 15, came under my care as an outpatient of the Brompton Hospital, January 13, 1870. No hereditary disease could be traced in the family. According to her own statement and that of her relations, she had had cough, pain in the chest, and loss of flesh for six months.

The catamenia, which had appeared and been regular, had stopped during this time. Feverishness and night sweats had also come on, and two weeks ago she was attacked with diarrhœa, which had ceased within the last few days. She was then very pale, and so weak that she could not stand, and had to be conveyed to and from the hospital.

I detected a cavity of considerable size in the upper part of the left lung; the physical signs being best marked under the clavicle and above the scapula. Tongue foul, pulse 100, heat of skin moderate.

Two teaspoonfuls of cod-liver oil in a tonic of 15 minims of dilute nitro-hydrochloric acid, with two minims of liquor strychniæ and an ounce of compound infusion of orange, were ordered to be taken twice a day, and a cough mixture, containing squills, opium, and sulphuric acid, at night.

January 20.—Heard that the diarrhœa had returned, and that the expectoration contained streaks of blood. A mixture of logwood and lime-water, with a few drops of laudanum, was ordered. The diarrhœa soon stopped, the oil and tonic being still persevered with.

24.—The chest was again examined, and cracked-pot sound and cavernous breathing were still audible in the upper left chest. Dilute phosphoric acid in 15-minim doses was substituted for the nitro-hydrochloric acid, the strychnia and oil being continued. After this she improved steadily, gaining flesh and strength, with diminution of cough.

On March 10 she was able to walk. On examination I was then able to detect only slight collapse of chest, with harsh breathing, and bronchophony under the clavicle and above the scapula on the left side. No cavernous sounds could be heard anywhere. Mr. W. R. Smith, house surgeon to the Huddersfield Infirmary, at that time clinical assistant at the Brompton Hospital, who had examined the patient at her first visit, and ascertained the existence of a cavity, was also unable to detect any signs of one on this occasion.

After March the patient continued to improve, and in June the catamenia reappeared, after a year's absence. Diarrhœa recurred several times, but always yielded to treatment, and latterly she has been subject to fainting fits.

August 25.—She has grown in height, and considerably increased in weight; cough slight. Dr. Bartlett, assistant medical officer of the Brompton Hospital, examined the patient with me, and we found slight collapse and deficiency

of movement in the left chest, with some bronchophony and prolonged expiration above the scapula.

October 13.—The patient has grown fat, and has been free from cough for some months. She has now little or no physical signs.

18.—She continues free from cough, but the catamenia are irregular.

January 1871.—Has become very fat, and has slight cough this winter, but no physical signs can be detected.

In this case the obliteration of the cavity took place in less than two months, and the patient's recovery from an extremely weak state of health seems as permanent as it was rapid. She presented some hysterical symptoms, but happily they did not cause those of phthisis to be overlooked.

Case II.

Isabel M., aged 53, a married woman, who has had nine children, was admitted into the Brompton Hospital under my care April 14, 1871. None of her family had suffered from consumption. Twelve years ago she had pleurisy, but remained well and free from cough till a year ago, when, after a fresh cold, cough and loss of flesh came on, and have persisted up to the present time; the patient having lost much flesh in the last six months. Diarrhœa came on at the beginning of the illness, and lasted three months; and night sweats have been present for nine weeks. On admission the cough was moderate, the expectoration opaque, purulent, and abundant, appetite good, tongue red, with apthous patches, bowels regular, night sweats profuse, pulse 100.

April 18.—I saw and carefully examined her. There was dullness over the whole left front chest. Cavernous croak from clavicle to third rib; marked dullness over the greater part of the right chest posteriorly; sibilant rhonchi were audible over both lungs. Mr. Rose, my clinical assistant, had ordered a mixture of dilute sulphuric acid and a few drops of laudanum three times a day, and under this treatment the night sweats had diminished, but the other symptoms remained. I prescribed a dessert-spoonful of cod-liver oil in a tonic of 2 grains of quinine dissolved by 2½ drops of dilute sulphuric acid in an ounce of water twice a day, a 15-grain powder of gallic acid at night, and a morphia linctus.

On April 22 her weight was 6 stone 6½ lbs.

May 8.—She has had a sharp pain in the lower front

chest, and some crepitation is heard in this region. She also complains of great flatulence after eating; 10 minims of spirits of peppermint were added to the mixture, and strong solution of iodine, ʒii to the ounce, was applied to the left chest.

May 15.—The night sweats have entirely ceased, the cough is less, the tongue is free from aptha. The pain and crepitation ceased in twenty-four hours after the application of the iodine solution. Patient still suffers from flatulence; pulse, 90; the rhonchus has disappeared.

On June 6 there was slight œdema of the legs. No albumen could be detected in the urine.

June 12.—Œdema has disappeared, and patient has increased in weight considerably; cavernous sounds are less distinct in upper left chest. The flatulence is still troublesome; 10 minims of glycerine of carbolic acid was substituted for the peppermint.

July 13.—The patient has been in the hospital three months, taking the oil and quinine regularly, and has steadily improved in strength and flesh. She now weighs 7st. 12lbs., having increased 1st. 5½lbs. in three months. The cough has much diminished. The expectoration is only white and frothy, the tongue clean, and the flatulence has quite ceased. The pulse and temperature are normal. There is still dullness over the whole left lung, and some rhonchus in the lower portion, but the cavernous sounds have entirely disappeared. Some slight tubular sounds are audible under the clavicle.

She was discharged July 15, but she paid me a visit at the hospital October 16, and I again examined her with Mr. Rose, my clinical assistant. Her health, with the exception of slight cough and short breath, seemed very good. Pulse 90; temperature 97·8. There was slight flattening, and little or no breathing in the upper left chest, as low as the third rib, and marked resonance along the left border of the first piece of the sternum to the extent of about an inch, shewing the right lung to be drawn to the left side.

Heart sounds were very audible over the left upper chest, but no displacement of the apex was to be detected.

January 1872.—Patient complains greatly of increasing shortness of breath, but she has little or no cough. Dr. Pollock examined her with me, and we found greater flattening of the upper left chest, the left side measuring through the mammary line one inch less than the right. The right lung is still drawn over slightly to the left side, and tubular

sounds are now audible above the right scapula. No cavernous sounds can be detected in the left lung.

Here the process of contraction in the cavity was completed in less than three months. The case had commenced in pleuro-pneumonia of long standing, as was evidenced by the physical signs, but no breaking down of the lung had taken place till within a year of the patient's admission into the hospital.

Case III.

Mr. B., aged 27, a banker's clerk, was seen by Dr. C. J. B. Williams, in consultation with Mr. Kempster, of Battersea, January 21, 1871, and gave the following history: One year ago he had fistula in ano, which healed in a short time, and he remained tolerably well till August of the same year, when a second fistula formed, and was discharging at the date of Dr. Williams' visit. In the middle of December he caught cold, and cough commenced, accompanied by loss of appetite, flesh and strength, and these symptoms had continued persistently ever since. The emaciation was great; the pulse was 90; the temperature 102·3. Dr. Williams found marked dullness in the upper right chest, especially at the sternal end of the clavicle, where loud tubular sounds were audible. Coarse croaky crepitation was heard over the upper third of right chest front and back, and subcrepitus above the left scapula. The patient had been taking oil and iron for one month. He was ordered to continue the oil in dessert-spoonful doses twice a day, in a tonic of 15 minims of dilute phosphoric acid, 2 minims of liquor strychnia, and a little infusion of orange, and to use counter-irritation over the left chest with acetum cantharidis.

February 2.—The cough had moderated, but the bowels had become loose; pulse 120; temperature 102·3. Crepitation had diminished in the right lung, and the left lung was clear. An effervescing saline, containing 5 drops of liquor opii sedativus, was ordered to be taken at night.

16.—I saw the patient with Mr. Kempster, and his cough was much worse, the expectoration scanty, and he had been seized that morning with sharp pain below the left mamma. His appetite was very bad, and he was only able to take liquid food. Night sweats had come on, and were now increasing; tongue whitish; bowels regular, and urine clear; temperature 101·2; pulse 108. On careful ex-

amination of the chest I found decided dullness, and coarse crepitation in the right front from the clavicle to the third rib, where the dullness ended abruptly. The chest below was resonant; crepitation was audible above the right scapula, and some mucous rhonchus and crepitation in the left front chest; also marked friction-sounds below left mamma over a space the size of the palm of a hand. My diagnosis was caseous pneumonia confined to the upper lobe of the right lung, and bronchial congestion of the left, with some pleurisy of the anterior base. I recommended counter irritation with acetum cantharidis where the friction-sound was audible, and to increase the dose of oil to ℥ss twice a day, and to take it in a tonic of 2 grains of quinine, 15 minims of dilute sulphuric acid, 3 minims of liquor strychnia and an ounce of infusion of orange.

13.—The pain under the left mamma subsided in twenty-four hours after the blistering, and no friction-sound or dullness is now perceptible in that quarter. The cough has decidedly improved in the last four days, the expectoration having become more copious and purulent. Cavernous gurgle is audible in the first intercostal space on the right side, and some rhonchus in the upper left back. Night sweats have nearly disappeared. Bowels regular. Temp. 99·8. Pulse 84.

Ordered: To continue the oil and tonic.

After this his cough again became worse and the expectoration more profuse, the temperature rose to 102°, and the pulse above 100, the appetite improving and the strength not diminishing. Dilute nitro-hydrochloric acid was substituted for the sulphuric acid in the tonic.

March 2.—He expectorated about a pint of purulent matter of a flocculent kind in two days.

6.—I saw him with Mr. Kempster, and found his appetite better, a fair amount of meat being eaten twice a day. He appeared thin, but not so pale, and strong enough to walk about the room. Temp. 100·4. Pulse 90. Tinkling cavernous sounds, audible from clavicle to third rib in front, were detected by Mr. Kempster and myself. The strychnia was omitted, and he was ordered to take a table spoonful of oil three times a day in the quinine mixture.

24.—A week ago the expectoration was tinged with blood, and still continues so. At present he is stronger, less pale, and able to walk out in the garden; appetite improved. Temp. 100·2, pulse 92. Tinkling cavernous sounds are still audible over the same extent of chest.

May 22.—The patient drove to my house from Battersea. He had been out in Battersea Park every day for some weeks with great benefit. He once caught cold when exposed to the east wind, and had catarrhal symptoms, which soon subsided. He has gained in flesh, colour and strength. Cough troublesome, and expectoration thick but scanty. Temp. 100·4, pulse 100.

On careful examination, I found the dullness considerably diminished; it could still be detected as low as the third rib, but the transition to clear sound was no longer abrupt. Not only had the tinkling disappeared, but no cavernous sounds could be detected, either in deep breath or coughing, anywhere. Some tubular sounds were audible in the first intercostal space, and both there and in the supra-scapular region some slight crepitation was perceptible. Breathing was rather deficient in the second intercostal space, but throughout the rest of the lung the respiration was tolerably good and free; some slight friction-sound was heard in the right mammary region, and the heart sounds were very loud in the right upper chest, but the apex did not appear to be displaced. A grain of sulphate of iron was now added to the quinine mixture, and the oil reduced to twice a day.

June 29.—Has been fairly well, but has lately complained of pain in the lower left chest and shoulder. The cough has become worse; tongue foul. Temp. 98·8. Physical signs about the same.

Sept. 25.—Heard that the patient had been in Kent and afterwards at Sandgate, and had improved so much that he wishes to resume his work in the city as a banker's clerk.

Oct. 17.—Saw and carefully examined the patient with Dr. C. J. B. Williams, who, on hearing that so large a cavity had contracted, expressed a wish to examine him again. The cough was still troublesome at times, and he had lost 4 lbs. in three months; his appetite has lately been indifferent: but he seems strong, and has quite a healthy appearance. Slight collapse, and slight dulness can be detected in the first intercostal space on the right side; slight dulness and bronchophony above the scapula. Throughout the whole right back good vesicular breathing was audible, without trace of cavernous sound, crepitus, or even prolonged expiration. Heart sounds were rather loud in the upper right front, but the apex was not displaced. Pulse 90, T. 98·8. Breath still short on exertion. The oil and tonic had been discontinued for a fortnight. To be resumed.

Jan. 31, 1872.—Has gained 11 lbs. in weight, and has now a good colour. Cough and easy expectoration still continue. Oil has been taken regularly. Slight dullness can be detected over the right clavicle and in the first intercostal space. Respiration has a rough quality above the scapula. Some wheezy sounds audible in the left lung. The fistula still remains open. Allowed to return to his work at the end of March.

The obliteration of so large a cavity as the physical signs denoted this to be, in the short space of two months, is, I am aware, a very exceptional occurrence, and one which the general symptoms of the patient would hardly have led me to expect. Among the very extensive records of my father's practice, I have as yet met with no similar case, though there are several in which a tinkling cavity contracted to some extent, and one in which although the cavity did not contract the patient survived its formation seven years.

Remarks.—It is probable that these three cases were instances of caseous pneumonia, and not of primary tuberculosis. All the patients were free from family pre-disposition; in one the left lung alone was attacked, and in the other two cases one lung was the principal seat of disease, and it is doubtful if the other had any serious lesion. It is well to remember too, that though extensive excavations took place, the disease was limited in extent, and for the most part confined to a single lobe of the lung.

One remarkable feature was, that contraction and obliteration of the cavity gave rise to little or no displacement of the adjoining viscera. In no case was either the heart, liver, or stomach displaced, and in one only was the lung of the opposite side drawn over. Even the chest wall was only moderately collapsed, and therefore we must conclude that the vacuum caused by the shrinking of the cavity was supplied by an expansion of the lung tissue around the cicatrix. The great diversity in the ages of the patients precludes our assigning any importance to this feature in the period of contraction, which in no case exceeded three months.

All three patients took cod-liver oil, in doses varying from a dessert-spoonful to a table-spoonful two or three times a day persistently for several months, combined with quinine, strychnine, quassia, and a mineral acid. The diet was generous, and included meat in either solid or liquid form twice or three times a day, and a moderate amount of stimulant. No attempt was made to introduce

an extra quantity of fatty matter, the oil being considered sufficient. In Case 3 a great variety of delicacies in the way of food and stimulants were supplied, and we were thus able to improve an unusually capricious appetite, and to ensure the introduction of a large quantitity of nutritious food.

VII.—*A Wound of Intestine during Ovariotomy, with recovery.* By CHRISTOPHER HEATH. *Read November* 10, 1871.

THE following is, I believe, a unique case of recovery after a wound inflicted upon the intestine during the operation of ovariotomy. It is not, however, I am informed, the only example of an injury of the kind which has occurred in the practice of even experienced operators, though, unfortunately, these cases have not been reported. This is to be regretted, I think, since the fact of such an accident once occurring would serve as a warning to other surgeons, and therefore, whatever the result, the cases ought to have been made public. In my own case, and in those to which I have referred, the injury to the intestine was inflicted by a surgical instrument, and these cases must not be confounded with those of tears of the rectum, which have occurred from the drag of firm pelvic adhesions, of which Mr. Spencer Wells gives an instance in a letter to Dr. Lyon, of Glasgow, in the 'Glasgow Medical Journal' of September 1867. Nor is the fœcal fistula present in my own case to be confounded with a fistulous opening arising from ulceration of the cicatrix, as occurred in the case reported by Dr. Lyon in the paper just mentioned.

The history of my patient is as follows: She was 37 years of age, married fifteen years, but had never been pregnant. She came under my care at the Hospital for Women, in November 1870, in very reduced health, and troubled with constant sickness. She had had an ovarian tumour for some years, and had been frequently tapped. One year before I saw her an attempt at ovariotomy had been made, but in the

judgment of the operator the adhesions were too firm to be broken down, and the wound was therefore closed. She made a good recovery, and had been tapped twice since then, but rapidly filled again, her girth being forty inches on admission.

I found her suffering from constant wearing pain and frequent sickness. Her life was a burden to her, and she was anxious to submit to any treatment to obtain relief. The risks of any further operative interference were put fairly before her, and as she determined to brave them, I agreed to make an attempt to complete ovariotomy on November 25, 1870. After the previous operation there had been some sloughing of the skin on each side of the middle line, and there was thus a broad cicatrix, to which I anticipated that the cyst would be firmly adherent. I therefore began my incision higher than usual, viz., two inches above the umbilicus, and continued it downwards for four inches. On cutting through the abdominal wall, but without opening any serous cavity, a dark-coloured cyst presented, and on attempting to carry my finger round it, it ruptured, and a quantity of grumous blood was evacuated, leaving the true cyst behind it unopened. Having opened up this blood-cyst, which was formed by the peritoneum, I endeavoured to isolate the ovarian cyst, which was firmly adherent in all directions. In order to do this satisfactorily, I found it necessary to enlarge the incision upwards, and this I did in the usual manner, raising the abdominal wall with two fingers passed beneath it, and cutting between them with blunt-pointed scissors. On completing the section an unusual appearance at the upper extremity of the incision attracted my attention, and I then found that a piece of small intestine, perfectly empty and adherent to the abdominal wall, had been divided in three-fourths of its circumference. An assistant grasping the ends of the divided bowel, I proceeded to complete the removal of the ovarian tumour, in which I encountered great difficulties owing to the firm adhesions both to the abdominal wall, and deeply in the pelvis, and also to the intestines on the right side. The cyst was connected with the right ovary, and there was a broad pedicle which I tied in two parts with hempen ligatures afterwards cut short, and the same plan was pursued with a long vascular band of adhesions. The tumour weighed 1½ lb. after the removal of 17 pints of fluid. It consisted of a large cyst, containing a few small cysts varying from the size of a chestnut to that of

an orange, one of which contained purulent matter. The fluid contained in the large cyst closely resembled milk-and-water in appearance, was not very albuminous, and contained a quantity of chlorides and a few crystals of cholesterine.

I now returned to the divided intestine, which I treated on the ordinary principles of surgery by establishing an artificial anus in the following manner: With silk sutures I drew the divided edges together immediately above and below the narrow band which remained intact at the posterior aspect of the bowel, and then attached the free margin of each section to the abdominal wall by two silk sutures on each side of the median line. These sutures were taken through the entire thickness of the bowel and the abdominal wall, so as to bring the two peritoneal surfaces into opposition. The abdominal incision was next closed with eight wire sutures carried through the whole thickness of the wall; and two of them were made to transfix the margins of the divided bowel, so as to fix them still more completely. Oiled lint was placed over the artificial anus, and upon this a linseed poultice smeared with laudanum was applied over the abdomen.

Without going through a daily record of the patient's progress, it will be sufficient to say that fœcal matter appeared at the artificial anus the day after the operation, and that flatus constantly escaped by the same aperture. The patient was of a remarkably tranquil temperament, and had really very little constitutional disturbance. The pulse was never above 140 or the temperature above 101°, and these limits were both reached on the day following the operation. On the third day there was considerable tenderness about the abdomen, but this passed off under continuous poulticing. On December 3rd the opium was discontinued over the poultices, and a small pledget of cotton-wool was placed over the aperture. On December 4th two of the wire sutures were removed, on the following day two more, and on the 6th the remaining ones, including those passing through the bowel. On the afternoon of the same day a quantity of serosanguineous fluid welled up through the lower part of the incision, and pressure on the right side gave exit to more of the same. The fœcal matter discharged at the opening assumed a more solid character as the patient became able to take solid food. It also diminished in quantity, and on December 11th the patient passed a small solid stool *per anum* and mixed with fluid resembling that exuding from the wound. On December 15th, the patient having been moved

into another ward and close to a window, on examining the wound I found all six silk sutures in the artificial anus, but they were all attached, and required division before they could be removed. On this day an enema was given and brought away some solid fœces. From this day the bowels acted regularly, the artificial anus being much contracted, but still discharging fœcal matter.

A month after the operation the patient was on the sofa, and was soon able to get about. When her health was quite restored I ventured to pass the finger into the artificial anus, and found that it passed upwards to the right and downwards to the left side. On February 4th, 1871, I put her under chloroform, and having inserted a piece of moist sponge into the opening, I applied the actual cautery to its edges. This caused some contraction, and on February 25th I repeated the operation, removing in addition with scissors a small portion of protruding mucous membrane. The cautery was again applied on March 11th, and the patient was finally discharged on April 8th, 1871, in good health, but with a fœcal fistula.

For some time before and after her discharge from the hospital there was considerable annoyance caused by the abraded skin in the neighbourhood of the fistula, due to the constant contact of fœcal matter. I tried various applications, but the most satisfactory was the *unguentum plumbi carbonatis.* A properly-made belt with a well-fitted air-pad is sufficient to prevent all extrusion of fœcal matter, and I have therefore abstained from all further operative interference, fearing that I might so narrow the calibre of the bowel opposite the fistula as to obstruct the passage of its contents. The patient now has a daily motion, is in no pain, and has grown fat. (She was presented before the Society for inspection).

The foregoing case will, I hope, act as a beacon to warn operators of the possible danger of an adherent coil of intestine when dividing the abdominal wall, a danger hitherto undescribed. Should such an accident occur again, I would strongly recommend the formation of an artificial anus, as in my own case, rather than any attempt to unite the divided bowel and to close the peritoneal cavity. In the similar cases to which I have alluded there was an attempt made, I am informed, to unite the divided bowel with silver wire; but under such circumstances a successful result could be hardly anticipated.

VIII.—*Paracentesis Thoracis in a case of Uncomplicated Pleuritic Effusion.* By JOHN MURRAY, M.D. *Read November* 10, 1871.

W. V., a rather tall, well-built, and swarthy man, a traveller by trade, and 38 years of age, presented himself on August 29, 1871, in the out-patient department of the Middlesex Hospital, with almost the whole left side of his chest as dull as a board, and nearly full of fluid. His features were haggard, he was feverish, his respiration was hurried, and his general appearance and the local signs were unmistakably those of extensive pleuritic effusion.

The man said that his family history was good, and that with the exception of a severe attack of bronchitis in 1863, from which he appears to have made a complete recovery, and a liability to catch cold, he had enjoyed unusually excellent health until a fortnight previously. He was then seized with symptoms of acute pleuritis, shivering and pain in the left side, which was increased by inordinate movement of the chest walls. These symptoms moderated in a couple of days; the pain became less acute, but his breathing continued to become more and more impeded up to the time he presented himself at the hospital. During the whole of this time he had been able to move about a little. The man declined to become an in-patient, so I gave him a few general instructions about keeping within doors, and ordered him to take a mixture containing acetate of ammonia. Three days afterwards he returned, worse in every way. I then gave him a mixture containing 5 grains of iodide of potassium and the same quantity of carbonate of ammonia in infusion of gentian, 3 times a day.

On September 5, *a week* after I first saw him, and *three weeks* after the commencement of his attack, he was admitted, at his own request, into the hospital. His expression was anxious, his features were pinched, and his face was of a dusky hue. He suffered no pain, but complained of being unable to sleep at night. He was somewhat feverish, his temperature being 101° Fahr.; his respiration was 30 per minute. The chest on both sides expanded slightly, the right side more than the left, and the ribs were pulled up on inspiration. He had a slight cough without expectoration. The heart's impulse

was seen distinctly to the right of the epigastrium almost on a line with the nipple, and was felt by the hand to be almost entirely to the right of the sternum. On percussion there was absolute dullness over the left side from clavicle to diaphragm, with entire absence of vesicular breathing, but with damped œgophony and bronchial breathing, the latter assuming a somewhat metallic character. The dullness extended to the right border of the sternum. On the *right side* the resonance was everywhere good, except over the space now occupied by the heart, and the breath sounds were exaggerated.

The cardiac dullness appeared to commence *vertically* at the upper border of the fourth rib on the right side, and become obscured at its lower border in the region of hepatic dullness; *transversely*, it appeared to commence about an inch to the inner side of the right nipple, and become lost in the dullness of the left side of the chest. The pulse was about 120, and the heart sounds were healthy. The tongue was moist and slightly furred, the appetite poor, and bowels regular. The urine was free from albumen.

The patient was ordered to continue the 5-grain doses of iodide of potassium, with a drachm of tincture of gentian and water three times a day.

On September 9, five days after admission, and nearly a *month* after the commencement of the attack, the patient presented almost exactly the same symptoms, with the same intensity as on admission, and his general health was becoming affected. There were no evidences of absorption of the fluid in the pleura, while there was reason to fear that the chance of the compressed lung recovering thoroughly was becoming daily diminished. I accordingly requested Mr. Hulke to perform paracentesis thoracis. The trochar was passed into the left side of the chest between the fifth and sixth ribs, where the digitations of the serratus magnus meet those of the obliquus externus muscles, and the fluid was drawn off by means of Nyrap's modification of Bowditch's (or rather it should be called Wyman's) aspirator. About 35 ounces of a clear straw-coloured and highly albuminous fluid of a sp. gr. 1020, were drawn off. During the operation, as the amount of fluid in the chest lessened, the heart was observed, both by palpation and percussion, to move towards the left side, but there was otherwise scarcely any appreciable change in the pulmonary physical signs. In the evening, and only six hours after the operation, his pulse had

diminished from 108 to 78 per minute, his respiration from 28 to 24, and his temperature from 101 to 99·4.

On the following morning he was noted to be much easier. P. 96, R. 20, T. 100. The percussion resonance over the left side appeared to be generally less dull than previously to the operation, and faint vesicular breathing was heard posteriorly, with occasional moist sounds and doubtful friction at the upper portion of the lung. The heart was now nearly in its normal position.

From this time the patient's general condition rapidly improved. The resonance over the left side increased from above downwards, and on September 19, ten days after the operation, there was distinct bulging on inspiration over the upper half of the left chest in front, but over this space vocal resonance and fremitus were still exaggerated; vesicular breathing was heard as far down as the nipple in front, and behind as far as the angle of the scapula, increasing in intensity from above downwards. There were now no physical signs of fluid in the chest. On making the patient stoop with the shoulders dependent, so as to allow any fluid which might have remained in the pleura to gravitate, there was no diminution of the vesicular murmur or the percussion resonance. Still the expansion generally of the left side of the chest was very slight, and the interspaces were drawn in on inspiration. The lateral measurement of the left or affected side of the chest, was 18 inches; of the right, 18⅔ inches.

On October 3 there was little improvement in the physical signs, and friction was now heard over the whole left side of the chest. The patient's general health was, however, very good, he had gained flesh and strength, and was able to move about without discomfort. Pulse, respiration, and temperature were about normal.

On October 17, five weeks after the operation, he was discharged, feeling quite well, and in apparent excellent health. There was still deficient resonance and weak breathing over the whole left lung, and friction was heard as before, but this produced no pain or uncomfortable sensation whatever on the deepest inspiration. During the last few days of his stay in the hospital compound ointment of iodine was rubbed daily into the side.

Remarks.—I have ventured to bring this case before the notice of the S ciety, not so much on account of any very unusual interest which it may individually possess, but in

order that the question of the treatment by early thoracentesis, chiefly in cases of extensive and uncomplicated serous pleuritic effusion, may be discussed. I should wish the question limited as much as possible to this class of cases, for it is in examples such as that of the patient whose case I have described, those of simple pleuritic effusion, that we have most opportunities of employing this means of treatment. At the same time I am of opinion that the operation is in a greater or lesser degree applicable in almost all cases of serous effusion or simple empyema, locally complicated or not. It seems to me that had the fluid been allowed in my patient's case to remain much longer, there being no evidence whatever of absorption, the lung would probably have become permanently and seriously disabled. The fluid had begun to accumulate a month before the operation, and the pleura had for at least a fortnight been completely distended; the heart was pushed over to the right side, and the action of the healthy lung was being thereby curtailed, while the patient's health was becoming visibly affected. Why not then perform thoracentesis for his relief? For my own part I see no reason why the operation should not have been done a week before—that is, immediately he came into the hospital. It may, however, be said that there is greater risk in the operation than is commensurate with the probable good to follow. Now this is the question on which the propriety of the operation in almost all cases of thoracentesis mainly depends, and therefore I hope that the members will give their experience on this point. I am inclined to call in question its alleged danger. From a considerable number of cases similar to that of my patient which I have seen in the Middlesex Hospital and elsewhere, I cannot call to remembrance a single case in which the operation could be said to have produced any bad effects whatever when done carefully with the aspirator and a fine trochar.

If, again, we consult the evidence of Dr. H. I. Bowditch, of Boston, we shall find that after a very large experience indeed, he says that he has never seen the least *permanent* evil resulting from any operation, and only the slightest temporary difficulties—such as pain, slight dyspnœa, and cough. M. Guinier of Montpellier, after large experience, also says that the operation has never seemed to do any harm in children. At the Hospital for Sick Children, my colleague Dr. Dickinson has employed thoracentesis extensively, and can afford much valuable evidence on this point.

Dr. Bowditch, I may say, gives a *resumé* in the 'American Journal of Medical Science,' for January 1863, of 75 cases in which he performed the operation by means of the aspirator. Of the 75 cases, the fluid obtained at the first operation was serum in 26, of which 21 made good recoveries; four of the others died, and the other two were fast failing, but he does not give the cause of their death, merely mentioning that the fluid became purulent. Since 1863, Dr. Bowditch has performed the operation in very many other cases of all kinds, making his total up to last year, at least 250 tappings in 20 years on 154 persons; and he still entertains the same opinion regarding the harmlessness of the operation.

Time will not permit me to quote other authorities who are in favour of this mode of treatment, but they may be easily multiplied.

I would therefore express my decided opinion that the operation afforded the best means of relief to my patient, and that at least in all those cases in which the pleuritic effusion is serous, and so extensive as to compress not only the lung on the affected side, but to interfere with that on the healthy side, together with the heart and great vessels, thoracentesis should be performed after the acute stage of the affection has passed off.

IX.—*Sequel of a Case of Syphilitic Neuralgia.** By Francis E. Anstie, M.D. *Read November* 24, 1871.

I TAKE this opportunity to state the progress of the interesting case of Matilda W., reported by me last June, in which a woman who had suffered from right-sided migraine in her young days, but had remained free from neuralgia of any kind after marriage, had at last contracted syphilis, which, in the tertiary stage, reproduced the neuralgia of the right trigeminus in an exceedingly severe form, affecting all three divisions of the nerve, and attended with an extraordinary number and variety of complications. It will be recollected that there was complete anæsthesia of the skin

* See 'Transactions of Clinical Society,' vol. iv. p. 192.

of the right side of the face, reaching to the middle line, spasmodic contraction of the right masseter and pterygoid, loss of taste in the right half of the anterior portion of the tongue, and absolute loss of smell on both sides. There were lachrymation and photophobia in the right eye. Besides these symptoms there was complete paralysis of the third and sixth nerves, in no way differing from ordinary syphilitic paralysis. The effect of treatment, so far as announced in my last report, was as follows: A daily administration of 30 grains of iodide of potassium completely removed in a fortnight the neuralgia, the anæsthesia of the skin, the loss of taste and of smell, the muscular spasms, and the lachrymation and photophobia. I explained to the Society that I believed all these symptoms had been dependent on the syphilitic injury to the fifth nerve, which had then completely disappeared. Meantime, the ocular paralyses remained stationary, or even seemed to get worse, and I was despairing, at the time of my last report, of effecting their cure with iodide of potassium. I have now to announce that, before resorting to mercury, I determined still to push the iodide, which I did, in larger doses. The effects of 45, and ultimately of 60 grains daily of the iodide were perfectly satisfactory, the ocular paralyses steadily diminishing, and when I last saw her about a fortnight since, she might be pronounced perfectly well, were it not for a somewhat suspicious zone of congestion surrounding the cornea.

This persistent zone of congestion is the relic of a very singular occurrence in the clinical history of this case. During all the long period in which the ocular paralyses were apparently quite unaffected by the iodide of potassium—nearly two months—there was not a sign of inflammatory action in the eye, though there was a certain amount of the passive congestion of the conjunctiva so common in neuralgic affections. Some three weeks later, when the ocular paralyses were rapidly diminishing under the influence of the larger doses of iodide, a serious threatening of iritis occurred, the iris becoming slightly muddy, and the cornea dull and surrounded with a dense ring of congestion, and violent pain attacking the supra-orbital and supra-trochlear nerves. I was so alarmed that for a very few days I suspended the iodide and administered small doses of mercury, keeping the pupil dilated with atropine. Whether *post hoc* or *propter hoc*, the pain subsided, and the cornea and iris cleared; and as the ocular paralyses seemed to have retrograded in the interval, I exchanged the mercury for the large doses of iodide of

potassium again. The cure of the ocular paralyses then proceeded without interruption, the only vestige remaining being a slight dilatation of the pupil, which I suppose cannot now be due to any remains of the action of atropine, which was discontinued several weeks ago. It would be curious to know if this slight and abortive attack of iritis were really a genuine recrudescence of syphilis, or whether it was only a transient flash of irritative action the starting-point of which was simple malnutrition of the nucleus of the trigeminus.

I forgot to remark that the effect of the iodide upon the patient's general nutrition and colour was exceedingly remarkable. She is now quite stout and fresh-coloured.

X.—*Case of Paralysis of some Cranial Nerves, referable to tumours of the cavernous sinus, cured by iodide of potassium.* By W. Moxon, M.D. *Read November* 24, 1871.

THE case which follows is that of a lad who was allowed to pass into an almost hopeless condition during a period of six months' progressive illness, which illness was quickly stopped, though slowly cured, as soon as he began to take the iodide of potassium. No excuse will, I hope, be needed for bringing before the Society so striking an example of a class of cases that are still deplorably frequent, in which by neglecting the rule of giving at once iodide of potassium whenever chronic local cerebral disease declares itself, the patient comes to much risk and suffering. This rule is one of those whose obligation is most pressing. The case, reported by Mr. J. Ewart, is as follows :—

John J., æt. 21, admitted May 17, 1871, into the clinical ward under Dr. Moxon. He gives the following history: Is a labourer, and was always in good health till twelve months ago, when he had a bad leg, the result of a kick. He was operated on in St. Bartholomew's Hospital, and some dead bone removed. The tibia is swollen, and there is an adherent scar over its upper third. Six months ago he began to suffer from severe pain in the left side of his head; this part became numb, and he could not feel if pinched on the left side of his face. The left half of his tongue was

similarly affected. The numbness extended down to the chin and a little below. He continued at work, but at the end of three months had to lie up, and was blistered on the temple and behind the ear. This, he says, relieved the pain, and at the end of a fortnight he went back to work, and was free from pain for a week. He continued at work for about a month, and then came up to town. In February last he noticed that he could not open his left eye without the assistance of his finger; his eye became bloodshot, and on coming to this hospital he was taken into the eye ward. He states that for some time he has been losing flesh, and that latterly he often feels giddy. He denies syphilis.

Present condition.—Patient complains of incessant pain and a feeling of pressure on the top of the head; he keeps his hand pressed upon the left side of his head, and occasionally moans from the severity of the pain. Sensation is a good deal dimished on the face as far back as the ear, but this is variable, an inch or two here and there being more affected than elsewhere. He does not feel when the tongue is touched on the left side, and does not taste salt or quinine on that side. He states that he never eats on the left side of his mouth, and cannot crack a nut on that side. For the last fortnight he has felt a little numbness in the thumb and two first fingers of his right hand, but I cannot make out anything very definite about this. The patient has some ulceration of the cornea of the left eye, which prevents the use of the ophthalmoscope. The eye is of a bright deep crimson colour. He can partly open and shut it, but he cannot move it outwards, and the other movements downwards, upwards, and inwards are only partially performed. He sees two images, the false image always being the outer of the two, as regards the patient's median line. He often feels sick in the morning; bowels very constipated since he has been ill. The patient's mind is perfectly clear.

He was ordered 3 grains of iodide of potassium with infusion of gentian three times a day, and a pill with ½ grain of extract of aloes, and ½ grain of extract of nux vomica every night.

May 18.—Had a sort of seizure in the closet, fell down, and was not insensible, but could not pick himself up for some minutes.

21.—Had an attack of giddiness, and had to lie down while Mr. Ewart was talking to him. He put his hand to the right side of his head as though he were in pain there.

May 31.—After varying somewhat from day to day, he

is reported as on the whole much better, both as to pain and as to the affections of the nerves. Sensation is better, and the eye has lost much of its intense crimson colour, and bears light better.

June 7.—The patient is decidedly better. Left internal rectus acts perfectly. Can now taste on left side of tongue; sensation of face much improved as to parts supplied by the two lower divisions of the fifth nerve.

17.—The patient seems to have come to a standstill as regards improvement. The anæsthesia is much less, and the headache gone. Ordered: Pot. Iod. g. xx. t. d. ex. Inf. Gent.

This increase of the dose was not followed by any more progress. He is reported July 4, as at a dead standstill; ʒj of Ung. Hyd. to be rubbed in. Pil. Hyd. Subchlor g.v.

On July 10th he was slightly salivated; and complaining, the mercury was withheld, and mist. ammoniæ ordered. He went on with no perceptible improvement until July 22, when Pot. Iod. g. xx. ex. Mist. Gent. was again prescribed.

27th.—Eye clearing up. No pain. Tried to get the external rectus to act with interrupted current, but could not on either side.

August 10.—The sensation of face is much better, and only a slight opacity of cornea is left. He can move the left eye slightly outwards beyond the median line, but there is internal strabismus.

From this time, under a continuation of the iodide of potassium, there has been a very slow and tolerably steady improvement not always sustained. Thus, on August 30, he was again unable to carry the left pupil at all outwards. On September 2 he could do so again. On the 15th he noticed that he could move the left eye further outwards soon after he woke up in the morning than in the after part of the day.

20.—Could move the left eye half way from directly forward to directly outward. There is scarcely any appearance of squint.

Since then he has been transferred to another ward, where from the larger number of patients I have less time to observe him, and, indeed, his state is so nearly one of complete restoration that there is no longer any great interest in daily watching him. Members of the Society have an opportunity of examining the completeness of his recovery, as the patient is in attendance outside this room.

Mr. Bader has kindly examined the eye, and reports both retina and optic discs healthy.

Unfortunately nearly all these cases relapse. I have warned him to apply at once at Guy's Hospital if he is attacked again with trouble in his head, or to ask his doctor for iodide of potassium if he cannot get to Guy's or any other hospital.*

In such cases as this the first aim in diagnosis usually is to discover the seat of the disease. No doubt too much attention may be given to this branch of the diagnosis, for it affords an opportunity of displaying at the same time one's ingenuity and one's anatomical and physiological knowledge. There is perhaps too easy a disposition to regard the detection of the situation of the intra-cranial disease as itself a triumph of medical diagnosis; but to know the seat of a disease is scarcely a medical diagnosis, unless the knowledge of the seat brings with it some knowledge of its nature.

However successful one may be in defining the exact spot which the disease occupies, one is thereby only advanced as far as when one at the first glance sees that a skin disease is on the patient's nose. The locality of the disease is only worth knowing in so far as it enables us to know its nature and its dangers. Indeed, unless we have a knowledge of the customary haunts of the several kinds of diseases, a knowledge of the seat of an unknown change is not medical knowledge, it is only a diverting physiological inference.

Any contributions, therefore, which will aid us to a larger acquaintance with the topographical distribution of the several kinds of disease within the cranium must be welcome and useful.

Thus, to refer again to our instance. If a man is seen with half a glance to have some skin disease on his nose, this localisation will enable anyone who is acquainted with the customary distribution of skin diseases to know that the man's disease is one of three or four complaints. Indeed, he will probably think at once that it is acne rosacea. I believe that it is equally probable that a disease of the sella turcica is syphilitic. It is the study of the customary seats of the several kinds of intra-cranial disease to which we must look in future to make our diagnostic power more useful.

The question as to the probable seat of the disease in my patient may be answered tolerably confidently. The third, fifth, and sixth nerves of the left side were affected, and the

* Since this paper was read the patient came again into Guy's Hospital, May, 1872, under Dr. Moxon's care; he had worked for two months in good health, when he was suddenly attacked with partial right hemiplegia. The iodide was again administered, and in six weeks he left the hospital, having recovered the use of the limb, and feeling quite well.

innervation of the right hand showed signs of disturbance. If we assume that his malady implicated the wall of the cavernous sinus, all the phenomena of the disease are explained so satisfactorily that nothing is left to be desired. The third, fifth, and sixth nerves will be directly involved, probably, with the fourth (though we could not test this), while the carotid artery also will be attacked, and the disease of its coats would impede the blood flow to the left brain, and so disturb the innervation of the right side, the hand showing symptoms first, either because its nervous centre more immediately suffers, as being more dependent on the one carotid artery, or else because the complexity of its developed and instructed organisation renders it more sensitively vulnerable to any causes of disease affecting it in common with other parts. Now, instead of attributing the numbness to a change in the artery, it might be supposed that it could be due to a direct pressure of the diseased mass in the cavernous sinus upon the part of the brain in contact with it; for this part would be the left corpus striatum which corresponds to the right hand. I would remark upon the vast weight such a difference makes in an estimate of the gravity of the patient's case, for if the numb right hand only signified that the corpus striatum was incommoded by pressure or such local disturbance, then the cure of the local disease would remove that pressure and restore the corpus striatum to peace and quiet again; but if, on the contrary, disease of the artery wall is starving the corpus striatum, then arises the danger of white softening of that part, a condition which, once established, is probably irrecoverable.

My experience, indeed, leads me to believe that the only irrecoverable result of intra-cranial syphilis is such white softening, caused through obstruction of the smaller vessels in the cortex of the brain when that is attacked by a syphilitic formation, or else through syphilitic disease affecting directly the coats of the greater vessels at the base of the brain, either primarily or through their connection with invaded parts of the dura mater, as in the case before us. A short time longer would, I believe, have placed this youth beyond cure, by causing softening of the left side of the brain from obstruction of the carotid artery.

There can then be no reasonable doubt that he had some disease of the cavernous sinus. It was of a progressive character, and associated with great pain; it had lasted six months, and had not been permanently relieved by blisters

and whatever other treatment he was subjected to. He denied ever having had syphilis. With this history and state, it might be that his malady was aneurismal, as it lay in the course of the carotid artery; his early age was nothing against such a view, for intra-cranial aneurisms occur often in very young persons. I indeed thought this view very probable. Or there might be present one of the many kinds of tumour growth which would constitute cancer of the cranium.

But I thought it my duty to begin the treatment before making the diagnosis. The man was at once given 3 grains of iodide of potassium three times a day, and the dose, when its benefit became slower in its progress, was raised to 20 grains in a few days. The result was, as we have seen, a practically complete recovery,* the pain disappearing first, and the paralyses passing off more slowly. The treatment thus not only preceded, but largely went to make the diagnosis. I suppose no one will strongly deny the syphilitic nature of the case, unless it be the lad himself, who still protests he never had syphilis, though he allows he has been in the way of it, and been a little sore as a consequence. Believing now that this was syphilitic disease of the cavernous sinus, I have seen two other cases with which it is so identical in symptoms that the three cannot be separated. Each of the others came to post-mortem examination, and in both the sella turcica and pituitary body were the primary seats of the disease, which extended laterally to the cavernous sinus. Both these cases were beautiful examples of syphilitic disease. (The brain of one is on the table before the Society.)

It has been before remarked that the sella turcica is a part of the cranium very liable to syphilitic change. I don't know who originated the remark. Lancereaux in his compilation adopts the statement on one page (vol. ii., page 41), and denies it on the next. The three cases I have mentioned lead me to believe it is true.

Without assuming anything explanatory in making the association, it strikes me to notice that this region is the seat of a development comparatively late in life; I mean that of the sphenoidal sinuses. Now, in numerous specimens of calvaria that I have seen, there are more or fewer exostoses of the frontal bone, and these have their chief development in the region of the frontal sinuses so as to be centred there as it were, and to diminish in number away from that part regressively. The presence of these frontal exostoses is a

curious fact which I have not seen attention called to. (I am not speaking of the so-called ivory exostoses which again belong to this region, and would themselves serve to illustrate the facts I want to draw attention to.) Some cause must be supposed to underlie this constant local relation. Again, it has been shown that there is a greater tendency to the formation of exostoses on the long bones in the neighbourhood of the epiphysial cartilage, and this at a time of life when growth is incomplete, or but just complete. This series of facts would suggest the statement that parts late in their development are less capable of resisting causes of disease, especially of diseases of a developmental kind, and if this is true, it would consort easily with the reflection that such development takes place under conditions conceivably less favourable than those of earlier development, inasmuch as the parts are subject to the play and strain of the severe exercises of mature age. Whatever be the explanation, the occurrence of exostoses of the long bones about the epiphysial cartilage, of these frontal exostoses about the frontal sinuses, and of syphilitic disease attacking the region of development of the sphenoidal sinuses, are capable of forming a pathological group to which other changes may be assimilated.

The present case, inasmuch as pain and anæsthesia complicated the ocular palsy, is removed from a highly interesting group of conditions in which ocular palsy without pain or facial anæsthesia precedes or complicates or otherwise belongs to the course of spinal disease. This is well known to happen in locomotor ataxia. But it is not limited to that disease in its characteristic form. I have twice seen it in cases by no means to be regarded as ataxic. Remembering the effects of section of the sympathetic in the neck and of pressure of cervical aneurisms upon the eye, we here have a chapter of nervous pathology which offers much to future investigation.

As the rule must be always to give iodine in these cases, it becomes an important question in the matter of their treatment, what are the injurious effects of iodine? I have witnessed some effects which certainly were not pleasant to the sufferer, and deserve to be taken into consideration. Thus a rash occurs in larger and smaller blotches resembling measles, roseola or urticaria; one rather frequently meets along with the rash a mild degree of constitutional disturbance, which, however, may not draw attention. In some cases I have persevered with the iodide not-

withstanding the rash, and the rash has nevertheless faded away just as if the iodide had been withdrawn. Thus a man in the clinical ward was taking one drachm in the day for sciatica with very good effects upon the pain, but a rash appeared and became very profuse without much constitutional disturbance. I reduced the dose to half a drachm, and under the use of this the rash soon disappeared, and did not return when the old dose was again given. Sometimes slight salivation and sometimes catarrhal symptoms occur through the use of iodide of potassium. I have never known them to reach a pitch distressing to the patient. It is certainly not pleasant to have a catarrh, and when the case to be treated is one where unpleasantnesses have to be avoided, the catarrh, no doubt, must be held to be of some account. But when we are dealing with symptoms of local disease within the cranium, the question is not of the pleasantness of a medicine, but of its effects in a case of imminent danger of the most terrible kind. Hence, I think the eruptions and catarrhs which are the occasional results of iodide, and which I have found to pass off under the continuance of the drug, are not worthy of consideration against the necessity of giving it a full and prolonged trial immediately in every case of chronic local intra-cranial disease as soon as the disease declares itself. Another set of symptoms which have been described as resulting from iodide I should like to hear the opinions of members of the Society upon; I mean the so-called iodism, a febrile cachectic wasting disorder. I have no experience of it, and have learnt from many of my colleagues that they also have no such experience, yet the accounts of the state of iodism are very precise, and it is difficult to suppose that something of a positive kind was not present to give a foundation to those descriptions. A very interesting and important hypothesis has been used to account for the severe results of so-called iodism; it will doubtless be known to many members of the Society. It is this: Beginning with the fact that iodism occurred in persons who were in process of cure from great goîtres, attention is directed to the probable effects of the disappearance of the goître itself; thus it is urged that this disappearance is of course due to the absorption of the matter of the goître in an altered form, and it is suggested that these altered constituents of the goître are themselves of a hurtful nature, so that the blood is poisoned by the

matters which the iodine, destroying the goître and causing its absorption, throws into the circulation. This is a very ingenious theory, and has a suggestive bearing on the nature of all those forms of cachexia which arise in consequence of tumours, especially of cancerous tumours. Although in my present case the advantage of a *large* dose of iodide over the small one was not evident, yet I have had experience to show that iodide of potassium in large doses will remove disease which smaller doses practically fail to touch. This youth, who now has been taking iodide of potassium in doses of a drachm daily for three months, says he is altogether better and stronger in health for the medicine; he eats well, sleeps well, and drinks well and looks well. His testes have not wasted. This again is an effect I have never seen result from the use of iodide, and I have used it very freely and perseveringly.

XI.—*A Case of Uncomplicated Aphasia.* By James Grey Glover, M.D. *Read November* 24, 1871.

ALL attempts to localise cerebral function are interesting, but they require to be severely criticised in the light of uncomplicated cases of cerebral lesion. In the present state of the question of aphasia, the following case may be of some interest to the Society.

George W. P., æt. 64, came under my care at the Holloway and North Islington Dispensary, on September 1. He is a thin man, works at a varnish and colour manufactory, and as far as can be gathered from him in his present aphasic state, is a working man of more than usual intelligence and education. He seems to have some knowledge of Latin and of several modern languages. The case, in brief, was one of impaired power of language, with a very furred tongue, the urine high-coloured, and the conjunctivæ yellowish.

The following is a brief history of his health, derived from his own account, on which I should confidently rely. He has been always a steady man. He has had good health and no ailments since those of childhood, excepting yellow fever

in 1833 or 1834 in the United States. He has never had venereal disease of any kind, nor rheumatism.

About eight months ago he had an attack similar to the present one, but of shorter duration. A fellow workman gave me the following account of his state then: 'He showed signs of something wrong two days before. He couldn't write the names properly on the cases—the customers' names, and the quality of the varnish. He spelt the names wrong, quite different. We couldn't understand what it was or what he meant by what he wrote.' (The Society will notice that he was working and writing all this time, the only error being in the wrong use of words.) His fellow-workmen never noticed anything before that, but they consider that since that occasion he has never been quite right. His recollection is not so good. He used to lose himself sometimes. The attack itself is thus described by the fellow-workman: 'It took his memory away, but he didn't fall; he went about his work in a strange way, as if he was going to have a fit. He fretted a deal. He was only off work a day and a half, and recovered himself in about a week.'

During the last two months or more that he has been under my care, the following have been the features of his case, with little alteration except an improvement in the promptitude with which he uses right words. I have said that he had a very furred tongue, high-coloured urine not containing albumen, and slightly yellowish conjunctivæ. The corneæ are clear and without an arcus senilis. His pulse is generally feeble, and occasionally it is very small and irregular. On these days his heart also beats irregularly. I have not detected any abnormal sounds in it, and in general it and the pulse beat regularly. On narrowly investigating the defect of speech, it was found to consist not in the difficulty of speaking a word, but in the difficulty of remembering the word wanted, for on reminding the patient of the word wanted he spoke it fluently. He could also write it well, and sometimes could write a word when he could not speak it. He protruded his tongue straightly; he walked as well as usual, and many a conversation with him has satisfied me that he is a very intelligent and cheerful man. I will give a few instances of his peculiar defect—be it one of memory, or of language, or of association. On being shown a book and asked what it was, he said, 'good,' 'house,' 'butter.' On being asked to write what it is, writes 'a good'—he then remembered the right word. On Sep-

tember 19, shown a ring and asked, What is that? 'a knife.' He was on the same day very much puzzled with a purse, and stumbled about among wrong words—'bag,' 'book,' 'bag,' and 'pocket-book.' Asked, What is that? (a hat), he said a knife, and then a hat. October 22, on being shown a watch and asked what it was, he said, '*tempus fugit*,' but could not say the name. On being asked to write the name, he wrote 'watch.' It is curious to see how he will often analyse all the elements of an object intelligently, perhaps come very near naming it, and then he may either succeed or wander hopelessly away into a sea of expressions, some of which have no existence, as if he was conscious of and exhausted by his unsuccessful effort. Thus, on being pointed to the window, he says, 'fire,' then 'glass and sash,' and then is quite at sea for a few minutes. On trying to write it, he puts down 'fireaway,' 'fender,' 'windaway,' 'windmays,' 'shot,' 'lock.' He did not succeed on this occasion. But about ten days afterwards, directing his attention to the window, he said 'windle,' and quickly 'a window.' Shown an ink-bottle, he defines it as a vessel which contains ink, but cannot get the exact word. On the day on which he was so puzzled with the name of the window, Mr. Kesteven was kind enough to see him with me at the Dispensary. He tested his power of repeating numerals, and found that he could count up to twenty straight and direct correctly, but that he could not do alternate numbers much beyond seven or nine. He gets confused at this point, and helps himself somewhat by the intermediate numbers.

History of the present attack.—He was seized about 8 o'clock on Thursday morning, August 31, being at the factory where he works. His own account of this attack is this: 'I was quite well before it. About 8 o'clock, just going to breakfast, I felt silly, a little dizzy, couldn't see for one or two minutes; I think I fell down, and when I came to, they told me I had had a fit. Walked home with the help of a young man, resting occasionally. The legs were all right.' The young man in question, and from whom I have already quoted, gives me the following account:—

'He was taken bad on a Thursday morning before breakfast in the water-closet. Came out of the water-closet with his trousers up but his shirt protruding. He seemed strange with his eyes, and foaming at the mouth. He had been in the closet ten or at most fifteen minutes. He seemed quite well before this occurred. He walked into the mill-house, a

distance of about forty yards; he seemed to have lost himself, and he put his hands into the machinery. After this he fell down, but tried to save himself, and was not quite unconscious. He had lost his speech, but spoke a little about the work. Cried a little, and seemed inclined to fret. After falling we picked him up, took him outside, and he kept looking about him. Could walk a little, but I had to lead him home. When he fell, or a little before, he foamed, and I noticed his mouth to one side.' (Thinks to the right side; corrects himself, and thinks it was to his left side.) 'He seemed quite feeble. Had to assist him home.' On my questioning him particularly, my informant added: 'He seemed to limp with one leg, but can't tell which. 'He began to fret as we went along. We were nearly a quarter of an hour in getting home, a distance that takes me ten minutes.' Such is the history of the attack.

Whether there was anything of a hemiplegic nature in the attack or not, little or nothing of the kind has been noticeable since I saw him, and I saw him the day after. The first attack, which was even simpler in its nature, consisted merely in the wrong use of words, and only kept him from work one entire day. I think, therefore, the case in its present stage may be regarded as an unusually simple and uncomplicated case of aphasia without the ordinary hemiplegic accompaniments. I confess, however, that I should not be surprised any morning to hear that the patient had had another attack, with hemiplegia or perfect unconsciousness added to his present condition.

I shall not detain the Society with any lengthened speculation as to the nature of the cause of the aphasia in this case—whether the lesion of the brain is merely functional or structural, and if structural, whether it consists in slight softening or a small extravasation or embolism, and whether the seat of the lesion—supposing there to be a structural lesion, which I think probable, considering the persistence of the aphasia—is the celebrated third convolution of the left side. I will only say, that my opinion inclines to the theory of a very slight extravasation somewhere. It would be intensely interesting to know where, but, M. Brocas's interesting theory notwithstanding, I do not think we are in a position to say confidently where. I can only express a hope that the patient will not develop any further cerebral symptoms, and that it may be long before our curiosity is fully satisfied as to the exact cause of the present ones. Mean-

time the case is a striking illustration of the state of aphasia. There is in this case at any rate no existing right hemiplegia. In fact, one interesting feature of the case is the existence of one or two symptoms indicating that the right side of the brain is affected rather than the left. For example, the patient just a week ago brought to the Dispensary a pin, with considerable exultation, to show me that he could pick it up with the left hand—a power which he said had returned to him the day before; though I confess that I had not noticed any defect in the sensation or motion of either side, or any difference between the two sides, nor had the friends who have seen the patient with me—Dr. Buzzard, Dr. Steele, and Mr. Kesteven.

Treatment.—The treatment has not been active; at first it was purely expectant. Then a little nitro-muriatic acid and gentian was given. His tongue still continuing thickly furred, a dose of rhubarb pills and afterwards a dose of colocynth pills was administered, with no effect on the fur or the aphasia. Since then, ammonia and a little wine have been given with advantage. The Society will remember that Trousseau—who was not generally a bleeder—in cerebral disease records how in several of his cases the aphasia quickly improved or disappeared after a slight bleeding. The whole aspect of this man, and his feeble pulse, forbade such an experiment.

XII.—*Case of Imperfection of the Aortic Valves; Hypertrophy and Dilatation of the Ventricles; Stretching of the Mitral Valve; Transient Triple Sound at the Apex of the Heart; Dropsy.* By S. O. Habershon, M.D. *Read December* 8, 1871.

AARON Y., aged 37, was admitted into Guy's Hospital on January 2, 1871, under the care of my colleague, Dr. Moxon. He remained for a short time, and was readmitted under my care on March 4. His work had been of a laborious character, at first as a soldier, and afterwards in

lead works. His general health had been good, and he had neither suffered from rheumatism nor from syphilis. About the commencement of the previous year he had experienced aching pain in the front of the chest, and cough. The pain was increased by exertion, and it passed from the second costal cartilage to the shoulders and down the arms; it was most severe during the night, and often awaking him, compelled him to sit up in bed.

He was a strong, muscular man; his countenance was anxious and his complexion pale; there was urgent dyspnœa, hoarseness of voice, cough, with mucous expectoration tinged with blood. The chest was normally resonant on percussion, and, with the exception of a slight sibilus anteriorly, the respiratory sounds were healthy. The cardiac dullness was however increased, the impulse of the heart was excessive, and the pulse jerking (water-hammer) 88 per minute; respiration 30, temperature 98·2. Over the aortic valves there was a double bruit, systolic and diastolic, audible also in the course of the aorta, but there was no abnormal sound at the mitral. On April 6 the legs began to swell, and the conjunctiva became sallow. On the 11th, in addition to the sound already mentioned, *a triple sound was audible at the apex of the heart* 'too-ta-too,' the bruit de rappel of Bouillard. On April 29th the dyspnœa continued, and flatulent distension of the abdomen increased the distress of the patient. The urine was albuminous, and it varied in quantity from 1 to 2½ pints; its sp. gr. from 1010 to 1020. It was sometimes, however, quite free from albumen. In May the sleep of the patient was greatly disturbed by 'dreadful dreams,' and he awoke with a start, perspiring freely. At the beginning of June he was much exhausted, and remained in bed propped up by pillows. The action of the heart, however, became more quiet, and in the middle of July he was so far relieved as to be able to walk in the hospital grounds. He had occasional attacks of angina pectoris, the pulse became quickened 104, but was regular. The heart sounds were mingled into one blowing sound. On August 18 the report stated that he had had severe attacks of angina, which 'terrified and exhausted him.' The abdomen increased in size, and fluctuation could be felt in it. The legs became anasarcous, and the liver enlarged. On September 7 the legs were punctured, but the fluid soon re-collected. The double aortic murmur was distinctly audible; the *triple sound had entirely ceased at the apex*, but a faint systolic bruit could be heard in its

place, and also in the axilla. On October 7 he sat up as usual, but suffered much from weakness and from urgent dyspnœa, and from abdominal distension. The legs were less anasarcous. A small blister was applied to the hypogastric region as a means of promoting serous discharge, but in the evening the distress became so great that the house physician had the abdomen tapped about 9 o'clock. Extreme faintness came on whilst the operation was being performed. With stimulants he slowly rallied, but only for a few hours, and he died about 5 o'clock on the morning of October 9, eight hours after the paracentesis abdominis.

As to medicinal treatment, the black oxide of mercury, with squill and digitalis, infusion of digitalis with sweet spirit of nitre and calumba were prescribed, and afterwards other diuretics and purgatives. Indian hemp, senega, hydrate of chloral, morphia, spirit of chloroform, were tried to relieve the nocturnal paroxysms, but the hypodermic injection of morphia was the most efficient remedy, and was after a time employed twice a day.

Dr. Fagge made the post-mortem inspection. The lungs were found to be firm from congestion, the heart was 21oz. in weight, the left ventricle was greatly dilated and hypertrophied; the left auricle was enlarged, and contained black blood; the mitral was stretched so that five fingers could pass through the valve; the valve itself was thin, but healthy; the aortic valves were much diseased, narrowed, and united at the points of juncture. There were irregular vegetations upon them, and more than one perforation existed in them. There was a small amount of straw-coloured serum in the pericardium. The peritoneum was intensely injected; it was ecchymosed in many parts, and there were many delicate bands of lymph. The liver was congested and firm (nutmeg); the stomach was congested; the kidneys coarse.

In this case we have an illustration of the insidious character and the slow progress of disease of the aortic valves when produced by over-exertion. The continued strain upon the valves and upon the aorta produced altered nutrition of the part, and thickening of the tissues; the valves became everted, and their edges adherent, and as the valves failed to meet, regurgitation of blood into the left ventricle was the necessary result. The additional strain upon the left ventricle was compensated by hypertrophy, and the patient for a considerable time experienced but little inconvenience. By increased tension the valves were torn or perforated by ulce-

ration; the symptoms became more severe, and the dyspnœa urgent. Pain at the chest and down the arms was associated with paroxysms of breathlessness. These symptoms first showed themselves twenty months before death. The physical signs of aortic disease with imperfection of the valves were well marked on his admission into the hospital. There was increased dullness in the region of the heart; there was strong impulse; and in the position of the aortic valves, and in the course of the vessel was a double bruit, systolic and diastolic. The pulse was of the kind usually present with regurgitation through the aortic valves (water-hammer). For many months the hypertrophy of the left ventricle kept pace with the dilatation till April 1871, about six months before death. There was then indication that the mitral valve had begun to yield; there was greater dyspnœa and cough and expectoration of blood, and all the symptoms increased in severity. The liver and kidneys became congested, as shewn by the anasarca and ascites, and by the albuminous urine. The cessation of the valvular action of the mitral was best explained by the stretching of the valve, and it was found to be unusually large on examination after death. It would seem not only that the left auricle could not freely propel its contents onward on account of the obstruction in the distended ventricle, but that at length blood flowed backward through the mitral during the ventricular systole.

It was not, however, on account of these symptoms that I have narrated this case, but rather to draw attention to the *triple sound* which was produced at the mitral when the valve began to yield, and which ceased after six or eight weeks' duration. The mitral was inordinately large, and a different explanation must be given than when the mitral is contracted, as in instances in which this symptom has been especially noticed; and I must refer to a very interesting paper on this subject by my colleague Dr. Hilton Fagge, in the last volume of the Guy's Hospital reports, in which he speaks of this reduplication in its connection with small mitral. The character of the sound was that often described as a reduplication of the second sound, the bruit de rappel of Bouillard; but it is probable that this second sound was really a reduplication of the first sound (too-ta-too), and it may have been produced by the increased tension in the left auricle, and in the lungs interfering with the free action of the right side of the heart; the right heart became delayed, and there was a want of symmetrical action between the two ventricles. As the

right side became accustomed to the increased obstruction, and its muscle had become hypertrophic, then the mitral and the tricuspid being synchronous in their action, there was only a single sound. This triple sound has been observed in sudden injury to the mitral valve, as when some of the chordæ tendineæ have been torn during violent muscular effort, and several instances of this kind were dwelt upon in the clinical teaching of the late Dr. Addison, of Guy's. The explanation in such a case is probably that just mentioned, namely, the sudden strain upon the right ventricle by the pulmonary obstruction. The position at which the sound was heard in the instance narrated was at the mitral and tricuspid rather than at the aortic and pulmonary valves; but if the right ventricle be delayed in its action, the second sound produced at the valves of the pulmonary artery would also be somewhat retarded in its commencement, and some might refer the abnormal sound to that source, but in such a case the sound would be most distinct at the base of the heart. The triple sound after some weeks gave place to a systolic bruit, which was audible in the axilla and in the plane of the mitral, and it might be suggested that irregular contraction of the muscular bands connected with the mitral consequent upon the regurgitation from the ventricle into the auricle, and the contraction of the auricle itself, might produce the abnormal sound; but in such a case the sound would we think be more frequently heard in imperfection of the mitral valve. As the dilatation increased, the heart became more embarrassed, and the attacks of angina pectoris recurred with greater severity.

In ordinary cases of cardiac apnœa and sleeplessness, morphia must be used with great caution, for the pulmonary congestion is often increased by it, and it has been truly said that the most effectual means of procuring sleep is to lessen the strain upon the heart's action. All the means in our power were employed to diminish the distressing angina, but of these remedies none were equal to the hypodermic injection of morphia, and it not only prevented the paroxysms of breathlessness, but quieted the whole of the nervous system without producing any cerebral oppression or narcotism.

On October 8 he was sitting up in the ward, but was very ill and much distressed; the abdomen was tense. I decided not to direct paracentesis abdominis on account of the danger attending the operation, but during the night the breathing was so greatly embarrassed that the house physician had

the peritoneum tapped. The dangers of such an operation were well illustrated: first, that of faintness from drawing off the fluid and disturbing the heart's action; and second, that of peritonitis from the intensely congested state of the peritoneal capillary vessels. During the operation the patient nearly died from syncope, and although he slowly rallied, it was only for about eight hours. The peritoneum was intensely congested, numerous extravasations of blood were presented beneath the serous membrane, and flakes of lymph were found to extend from the parietes to the coils of intestine.

XIII.—*Case of Cardiac Disease after Rheumatism. Regurgitation through the Mitral Valve; Partial Obstruction; Pre-systolic Bruit; Embolism; Left Hemiplegia; Recovery—first of the hand, then of the arm, and afterwards of the leg.* By S. O. HABERSHON, M.D. *Read December* 8, 1871.

RICHARD R., aged 11, was admitted under my care into Guy's Hospital, February 22, 1871. Three years previously he had had scarlet fever, followed by rheumatism. There had been no evident constitutional disturbance till two weeks before admission, whilst at school, when his foot pained him, and became swollen. He was a pale, delicate child; his countenance had an anxious expression; he had lost flesh, and complained of pain at the stomach and in the region of the heart. The respiratory sounds in the chest were normal, and the resonance good. The cardiac dullness was increased; the pulsation was felt at the normal position, and a thrill was communicated to the hand placed over the apex. There was a loud systolic bruit, and a less distinct pre-systolic one in the region of the mitral valve; the systolic bruit was audible in the axilla and at the back. Over the aortic valves the systolic bruit was audible, but the second sound was clear. Pulse 114, regular, tolerably strong. Respiration 36. Temperature 99·9, the tongue clean, the bowels regular.

Urine sp. gr. 1022; it contained lithates and a small quantity of albumen. He was ordered rhubarb, soda, and calumba three times a day, and afterwards steel wine. Till March 16, he continued to improve, and the bruit was less distinct; he then had pain in the calf of the leg, with headache; he appeared to have taken cold, and had an accession of rheumatic pain. On the 20th the temperature was 102·4; the pulse 146; the respiration 60. Citrate of potash was ordered; the pre-systolic bruit was more distinct, tongue furred. 21st, temperature 101·1; pulse 124; respiration 26. His strength appeared to fail, and some aromatic spirit of ammonia was added to his medicine, and a glass of wine ordered. On the 27th he was better, the pain had left him, and he was able to walk. On the 11th the pre-systolic bruit, which had become scarcely audible, was again very well marked; the patient was not so well, and very restless. Citrate of potash mixture with small dose of iodide of potassium were ordered.

On April 12 he was seized with vomiting, and became delirious; he was very pale, and seemed to be in great pain; the pupils were dilated, the pulse hard 120. There was paralysis of the left arm and leg, and he uttered screams, placing his hand on the forehead as if in great pain. There was profuse action from the bowels. The house physician gave him gr. x. of the hydrate of chloral the previous night. At 11 A.M. he remained on his back quite unconscious, the face flushed, the respiration laboured 44, pulse 112; temperature 96·5. At 2 P.M. he was conscious, and moved the right arm about continually. At 9.30 P.M. the pulse was irregular 112; respiration 66. The face flushed, he was constantly crying out for water; he complained of pain in his head, and was very restless, occasionally screaming ont. On the 13th, at 1.15 A.M., there were convulsive movements of the left arm and leg; he appeared afterwards prostrate, and the eyes remained half open; pulse 112; respiration 48. At 11 A.M. he was pale, the surface of the body was cold, the pupils were greatly dilated, but were equal. The left side remained powerless, and there were occasional struggling movements of the right side; at other times he lay on his back sighing; respiration 56; pulse 108. 14th.—He was very restless during the night, complaining of pain in the head; he got out of bed and attempted to walk, but fell down; the respirations were 64 per minute, the pulse 120.

15.—The little patient was better, he had had some sleep, and was less restless. At times he cried out, saying that his

'head ached so,' 'especially his forehead;' and that he 'ached all over.' The pupils were greatly dilated, the tongue furred, and red at the edges; he had taken a little beef-tea. He wished to lie upon his abdomen, but when his mother turned him over he became quite blue in the face. In the evening he was decidedly better, and had spoken.

17.—Still improving; pupils normal, so also the temperature; the bruit was still very loud; the left side quite hemiplegic. A blister was applied to the neck, and bromide with iodide of potassium ordered in the saline mixture of the hospital (citrate of potash). The blister seemed to relieve the headache, but he had for several days pain down the spine. On the 22nd the pain in the back continued; the left hand was recovering power, he could move the fingers and grasp with the hand, but he was still unable to move the arm or the leg. On the 27th he could move the arm, the pain in the back and head had left him, and he slept better. On the 29th the bruit was only systolic, the pre-systolic being no longer audible. On May 6 could move the left arm well, and could grasp firmly. On May 12 he could move the left leg, but could not walk without assisttance. May 17. The patient was stronger. The bruit was very loud but only systolic in character. On the 30th he could walk without assistance, but he dragged the left leg; the limb regained power till he left the hospital on June 24.

Unfortunately too many instances of cardiac disease after rheumatism occur to render this case a rare one, but some of its symptoms are of great clinical interest. The little patient gave a history of rheumatism, then of returning pain, and of shortness of breath and palpitation. There was a loud systolic with faintly audible pre-systolic bruit, and after a time in the hospital, the pre-systolic bruit became suddenly much more distinct. Febrile excitement supervened and restlessness, and afterwards headache, vomiting and delirium. The left side became paralysed, convulsive movements followed, with occasional screaming. The pupils were widely dilated, the pulse very rapid. After three days the symptoms became less severe, some sleep was obtained, and amendment slowly took place. The left side was, however, paralysed, and by degrees recovered its power, so that in six weeks he could walk without assistance.

The cerebral symptoms in this case would formerly have been attributed to metastasis, and the condition would have been ascribed to inflammatory disease of the brain. It is

probable, however, that a portion of fibrin carried from the mitral valve led to obstruction in the middle cerebral artery on the right side, and was the cause of the hemiplegia. The disturbance of the circulation of the brain, with exhaustion, and increased irritability of the periphery of the cerebrum consequent upon that exhaustion, produced the convulsive movements, the restlessness, the dilated pupil, the rapid pulse and hurried breathing. This irritability lessened when sleep was obtained, and the patient then slowly recovered. It was interesting to watch the changes in the mitral bruits; at first systolic, and in the plane of the mitral. Then a pre-systolic bruit was detected before the onset of the severe symptoms, and afterwards the pre-systolic bruit ceased, showing that the obstruction at the mitral, the cause of the pre-systolic bruit, was produced by the fresh deposit of fibrin, and was of a temporary rather than a permanent character. These pre-systolic bruits have been found especially with contraction and obstruction at the mitral, and in this case fresh deposit on the valve, or the obstruction from increased contraction of the valve, will probably cause a renewal of the sound.

There was good reason for believing that the cerebral symptoms in this case arose from embolism, and not simply from functional disturbance, but it was remarkable how different the order of recovery of the paralysed parts was from that observed in ordinary hemiplegia from apoplectic effusion and from other causes; the arm regained its power before the leg, and in the limbs themselves the order was also reversed, the fingers, then the arm and shoulder; whereas in hemiplegia generally, the muscles of the shoulder recover first, then the arm, and lastly the hand. We believe that this course of symptoms arose from the brain tissue not being permanently injured by the embolic occlusion; the circulation was soon restored, and the general condition more closely resembled the ecclampsia of early life rather than the state of hemiplegia from effusion of blood. These detachments of fibrin are more likely to occur in the exhaustion of anæmia, especially after the excessive use of salines, but in this child no depressing measures were used. He was pale and blanched when admitted, and steel wine and rhubarb julep were ordered, and afterwards citrate of potash. During the severity of the attack no medicine was given, but nourishment when he could take it; and the recovery was probably more rapid than if powerful and

exhausting agents had been used. A dose of chloral hydrate was administered, and it produced unconsciousness; but it is very doubtful whether the effect was beneficial. It is very important in these instances to sustain with proper nourishment, and to watch patiently rather than injuriously to disturb and depress the sufferer.

XIV.—*Case of Tumour in left half of floor of fourth Ventricle, with small Tumour in Cerebellum.* By W. H. Broadbent, M.D. *Read December* 8, 1871.

A CHILD, æt. 2 years (John R.), was brought as out-patient to St. Mary's Hospital, March 14, 1870. It had never been strong; was backward in walking and talking, and had always had a peculiar way of crying. It was fairly nourished; had reddish-brown hair.

Three weeks previously, the child had begun to have what the mother called 'screaming fits.' It was always on the whine, but at times would begin to scream with extreme violence, throwing itself back, and resisting all efforts to calm it till it was completely exhausted, when it would lie as if half dead on its mother's lap. It slept soundly at night and snored, but usually woke up two or three times whining or screaming; sometimes, however, it slept quietly through the night.

The child ate ravenously, and was perpetually drinking. The bowels were much confined, and every morning there was vomiting immediately after waking and before any food was given, mucus only being brought up.

On examination it was seen that the left side of the face was paralysed: the occipito-frontalis and corrugator supercilii of this side did not corrugate the forehead as on the right side. While the child was quiet both eyes were kept persistently open, the reflex winking movements being suspended, but after a time, or on touching the eyelids, the right closed and the left did not. The left cheek and angle of mouth also showed evidence of paralysis. The eyes moved together, but the right more freely than its fellow,

and on careful watching, it was observed that the left never went outwards beyond the median plane. The left external rectus supplied by the sixth nerve, was thus obviously paralysed. Pupils equal and sensitive. It has been shown by the researches of Stilling and Dr. Lockhart Clarke, that the sixth and portio dura of seventh nerve arise in a common nucleus in the fasciculus teres, a slight eminence near the middle line of the floor of the fourth ventricle, and the implication of these two nerves raised a strong presumption that there was disease at this part. The child was too young to permit of any satisfactory testing of sensibility, and was, moreover, screaming violently during a great part of the examination. While the crying lasted, it was seen that the right hand was clenched and agitated, while the left hand and arm were quiet; both legs were in motion, the right most. In a quiet interval, the fingers of the right hand and both feet were continually in motion, while the left hand did not move.

A leech was applied behind the left ear; a powder containing hyd. c. cret. gr. j. p. rhæi. and sodæ bicarb. aa. gr. ij. was given every night, and chloral. hydrat. gx. every four hours.

March 17.—Only one screaming round since last visit, but that lasted two hours. The mother considered the child to be worse; it was cross, and whined much; vomited more, not after food but in the morning; was constantly scratching the left ear and the top of the head. Bowels still confined. While under observation it was tranquil, amused itself by picking up objects with the left hand. The left eyelid moved a little but never closed, even when the conjunctiva was touched; this eye was turned inward and never passed the middle plane of the orbit outward. Treatment continued.

21.—Has had screaming fits, not so frequently as before the medicine was taken, but quite as bad; more restless; does not sleep so well; starts and tears its clothes, &c. The mother has noticed that it uses only the left hand to take and hold things. Bowels not open. The child was screaming in a most distressing manner in the waiting-room, but became quiet in the consulting-room. Right hand clenched, left moved about naturally; eyes half closed equally on the two sides; not closed in the usual working movements. Dose of powder increased to 8 grains nightly; the chloral to be taken every three hours.

The child rather more quiet again till the 28th, 29th, and 30th, when the screaming attacks were as violent and con-

tinuous as ever, and the child had no sleep. On the 31st, the paralysis of the left portio dura and sixth as before; pupils equal; right hand never used and always clenched; left not affected. A peculiar unsteady movement of the head and right hand was noticed, and there was an occasional jerk of the right leg.

Belladonna was now substituted for the chloral, and given in five-drop doses of the tincture every four hours; increased in a few days to eight drops. There was less screaming after this change, possibly due to the advance of the disease, but apparently from the influence of the belladonna. About April 14 the child ceased to take food, gradually lost strength, and died on the 20th; the only new feature observed being increased agitation of the head and right hand.

A *post-mortem* examination of the head only was permitted. The cerebral hemispheres and central ganglia presented no morbid change. The pons and middle peduncles of the cerebellum appeared quite normal as seen in the base of the brain. In the left hemisphere of the cerebellum near its edge at the antero-lateral part, was a small tumour embedded in its substance just below the transverse fissure. It was yellow in colour, of firm consistence and gliomatous in structure; it appeared to be connected with the pia mater. When the cerebellum was divided in the usual way in order to expose the fourth ventricle, there was seen projecting from the left lateral half of the floor, a tumour similar in appearance to the one found in the cerebellum. It occupied almost the entire half of the floor of this cavity, limited strictly by the median line, widest and most prominent opposite the crus cerebelli ad pontem, not reaching the calamus scriptorius below, extending above into the aqueductus sylvii.

Neglecting the small tumour in the cerebellum, which had it been alone would have given rise to no characteristic symptoms, except perhaps the vomiting, the morbid appearances corresponded almost exactly with the diagnosis formed, and offer a ready interpretation of the symptoms. The tumour involving the common nucleus of the portio dura and sixth nerves of the left side, caused the paralysis of the facial muscles and of the abducens of the eye on the same side, while by its interference with the decussated track of motor impulses from the left corpus striatum to the arm and leg of the opposite side, it gave rise to the contraction, agitation, and loss of use seen in them, especially in the right hand.

XV.—*Case of Paralytic Strabismus, cured by Tenotomy and localised Faradization with the primary current.* By Robert Brudenell Carter. *Read January* 12, 1872.

THE patient whom I present to the Society this evening affords an illustration of the advantages of the use of localised faradization, combined with tenotomy, in the treatment of the otherwise very unmanageable form of strabismus which is produced by paralysis of one of the recti muscles, followed by secondary contraction and shortening of its antagonist. She is a married woman, 33 years of age, usually in good health, and with no appearance, or readily discoverable history, of syphilitic infection or of intra-cranial disorder of any kind. She first applied to me at St. George's Hospital, May 16, 1870, and said that her squint had come on suddenly a little before the preceding Christmas, so that it was then of about five months' duration. She attributed it to some rough usage on the part of her husband, who took her by the throat and shook her, but the squint did not appear for nearly a fortnight after the occurrence of this domestic incident, and the connection between the two was by no means clear. When I first saw her the right cornea occupied a central position in the palpebral fissure, but the left cornea was scarcely visible. When standing in front of the patient, only its external third could be seen; and the pupil had quite passed out of view. The movements of the right eye were free and unrestrained, but the left eye was fixed in the state of inversion I have described, and could not be rolled outwards even when the right eye was closed. The best efforts of the patient only produced a scarcely perceptible quivering movement.

In the absence of any clue to the nature of the affection of the external rectus or of the sixth nerve, I thought it desirable to commence the treatment by full doses of iodide of potassium, and the patient took 30 grains daily. There was at first some improvement, in the shape of a slightly increased mobility of the squinting eye; but it made no progress, and was perhaps rather apparent than real. After the lapse of nine weeks, during the last six of which no ground had been gained, I determined to treat the malady as a local one. On

July 19 I thoroughly divided the tendon of the internal rectus of the squinting eye at its insertion into the sclerotic, and noted at the time of the operation that the shortened muscle was felt as a tense and firmly-resisting band. A day or two afterwards, when the conjunctival wound had healed, I found the eye very much in its old position, to which it had probably been guided back by the internal fibres of the superior and inferior recti. I then commenced localised faradization of the external rectus with the primary current of a Stöhrer's battery, a procedure which was at first somewhat inefficiently carried out on account of the unsteadiness and resistance of the patient. My then assistant at St. George's, Mr. Cresswell Baber, succeeded, by care and patience, in overcoming the difficulty hence arising, and was able after a time to apply the current effectually. The external rectus soon began to contract under its influence, and to draw the eye outwards during the actual passage of the current. Steady increase of strength was gained, until at last, although the ordinary or resting position of the eye remained almost unaltered, the patient became able to roll it quite to the middle of its palpebral fissure, by strong effort, when the right eye was covered, producing, of course, a very large secondary squint of the right eye in doing so. Beyond this point we made no advance; and therefore, on November 22, I performed a second operation, by dividing the internal recti tendons of both eyes, with the effect which you will see when the patient is admitted. I am anxious to call particular attention to the free mobility of the left eye outwards in the direction of the once paralysed external rectus.

I was first induced to apply this method of treatment some five years ago, in consequence of the very defective results which are usually yielded by the plan laid down in text-books of ophthalmic surgery; that is, by division of the contracted muscle, and division with shortening, bringing forward, or re-adjustment of the paralysed antagonist. It is quite evident that such an operation has no tendency to cure the paralysis: that it can give no power of motion to the paralysed muscle; and that if, by merely shortening this, it drags the eye into the middle line, the patient will have double vision of all objects on the paralysed side, while the manifest deformity will be very likely to recur. Moreover, these re-adjustment operations frequently give to the eye a strained and unnatural aspect, due to the removal of conjunctiva or to the contraction of cicatrices, and almost as conspicuous as the squint

which they are intended to relieve. In the present case I think no one would have ventured to predict a really good result from any form of re-adjustment of muscle; and I believe no other plan than that actually pursued would have brought about a corresponding amount of benefit. It will probably be conceded that the iodide of potassium was tried sufficiently; and that the faradization would have been useless until the paralysed muscle was set free to contract by the preliminary division of its antagonist. The division alone was proved by experience to be insufficient, and the limit of improvement was found to be distinctly reached before the second operation was had recourse to.

In order to apply the localised faradization I devised the pair of rheophores now exhibited. They put together, so that they can be conveniently held in one hand, while the other is free to control the eyelids. Their terminations are covered with thin leather to retain moisture, and are placed directly upon the conjunctiva over the affected muscle. The pins connecting the handles allow the extremities to be more or less separated at the pleasure of the operator.

The cases suitable for this kind of treatment are not common, and the present is only the fourth that I have met with. In the other three I had the good fortune to be equally successful, and an account of them appeared in the 'Lancet' of January 2, 1869.

XVI.—*On the Temperature in certain Affections of the Nervous System, but especially in Tetanus: with observations and notes on the influence of remedies upon the temperature of the body.* By JOHN W. OGLE, M.D. *Read January* 12, 1872.

AT the commencement of our last session* I brought before the notice of the Society a case of traumatic tetanus, accompanied by a table showing the diurnal temperature, frequency of respiration and pulse, in which, among other points, certain tolerably regular or periodic daily variations, of a remarkable character, in the heat of the

* October 14, 1870.

body were observed. The thermometer (self-registering) was used daily for 22 days, and during the most critical time of the disease, morning and evening each day; and it was ascertained that whilst the temperature throughout the entire course of the illness was much higher than natural, it was over a period of several days much higher in the evening than in the morning.

Consideration of the table shows that the evening preponderance did not by any means correspond with, or have relation to pyrexia or fever,* to any rise in the frequency of respiration or of the pulse; nor was the course of the temperature and of the general symptoms that of traumatic fever so called.†

Thus on one occasion in the evening, when the thermometer stood at 102·3°, the respiration was only 28 per minute, which it frequently was when the temperature was only between 98° and 100°; and at another observation it stood at 102·1°, when the respiration was but 24 per minute, the pulse being 100 in both instances.

At one observation, when the pulse was 160, the temperature was only 100°.

Neither did this deviation in temperature appear to be at all occasioned by any variations in the food, or in the degree of sweating, or covering of the surface, or in the amount or force of muscular spasm which existed, such as is found to obtain after muscular exertion in health,‡ or after the cramps of cholera (see note A), or after convulsions of epilepsy (see note B), or, according to Dr. Barnes (see note C) after the uterine efforts of pregnancy.

In my communication to the Society I suggested that 'possibly an accumulation of cases of tetanus in which the

* Dr. Currie, in his work to be alluded to later on (vol. ii. p. 178), when speaking of tetanus, observes, 'It is deeply to be lamented that this disease should ever have been considered as of an inflammatory nature, and that there are even now physicians who treat it by venesection. It is in my mind decisive against this supposition that, though the general system is so powerfully affected, the animal *heat is not increased*.'

† On the Thermometry of Traumatic Fever I would here refer to the extensive observations by Billroth, in Langenbeck's Archiv., vol. vi.; also to those of Dr. Gibson in the 'British and Foreign Medico-Chirurgical Review,' January 1866; and to a paper by my colleague, Mr. Pick, in vol. iii. of the 'St. George's Hospital Reports,' p. 73, 1868. See also Mr. Croft's paper on Hectic and Traumatic Fever, in vol. i. of Holmes's Surgery, p. 287, 1870. Thermographs of both these forms of fever are appended.

‡ Dr. Goodhart observes in the 'Guy's Hospital Reports,' vol. xv., p. 371, that the hardest exertion, unless continued for a long time, as in chorea, does not raise the temperature much more than one degree.

temperature had been taken night and morning continuously might prove that, as regards temperature, this disease followed a specific and typical course, and might show important thermometrical differences between cases of true tetanus, and those cases from which tetanus has occasionally to be diagnosed, such as certain affections of the spinal cord or its membranes, certain exceptional cases of brain disease, and certain cases of hysteria, as also of strychnia, and other forms of poisoning.'

Since the date of my communication I have not myself had an opportunity of watching any other cases of tetanus, with a view of determining whether any variations in temperature existed; or if so, how far the variability at any time was periodic.* In the month of March, however, I received from Dr. W. W. Keen, of Philadelphia, a copy of the number of the 'Philadelphia Medical Times' for March 1, 1871, in which at page 195 he detailed the following case of traumatic tetanus, treated with enormous doses of calabar bean,† and presenting daily variations of temperature:

'W. H. V., aged 26, was admitted into St. Mary's Hospital, September 25, 1869. After being kicked on the belly by a horse, he had severe pain for some days. On the second day he noticed stiffness of the jaws, and on the seventh day his legs became so stiff that he fell. He was placed in a stable, and lay there for eight days, utterly neglected. When admitted into the hospital, fifteen days after the accident, he was fretting, and wretched beyond description; emaciated; muscles of the face, neck, back, abdomen and all the extremities rigid: opisthotonos well marked, utmost separation of the teeth, one quarter inch; deglutition difficult and painful; articulation indistinct; voluntary movements of limbs possible, but difficult; slight tenderness over the epigastrium; *breath exceedingly offensive*; ‡ no stool

* The boy, whose case I have just alluded to, is at the present time, as I understand from Mr. W. Leigh, of Chiswick, strong, healthy, and able-bodied, excepting that at times he is very languid, and complains of aching pains in the back and head, which last a few hours. These pains have troubled him ever since he left the hospital.

† Without any marked effect on the pupil.

‡ I would call attention in passing to the character of the breath in this case, and to that of the perspiration in the following (Mr. Dixon's) case, observing here that I have got together for publication a number of illustrations of unusual odour of the breath and perspiration in connection with disease of the nervous system. In describing a fatal case of tetanus in the 'British and Foreign Medico-Chirurgical Review' for October 1868 (case 29 of a series), I alluded to the occurrence of *offensive* perspiration.

for four days; pupils slightly dilated; no marks of external violence.

'*Treatment.*—Purgatives at once; morphiæ sulph., ext. bellad., āā, gr. $\frac{1}{6}$, with ext. conii gr. ij. every three hours, and chloroform to the spine, with milk-punch and beef-tea.

'September 26.—Pulse 104; resp. 16; axil. temp. 100° F. Sleeps most of the time, though easily aroused; otherwise no change.

'27.—Pulse 108; resp. 14; temp. 98$\frac{2}{5}$°. *Offensive breath* perceptible at several feet; muttering delirium; tetanic spasms; urine drawn off. Treatment continued, with potass. chlorat. gr. x. and quin. sulph. gr. ij. t. d.

'October 1.—Dr. Keen came on duty. Since the 27th the patient had gradually become worse. Pulse 120; resp. 11; temp. 100°. Lips livid; but one stool since his admission; delirium and tetanic rigidity unchanged. Treatment changed to ol. tiglii gtt. ss, to be repeated till the bowels were open, and calabar bean, gr. $\frac{1}{8}$, in the form of fluid extract, every three hours, each dose to be increased by gr. $\frac{1}{8}$, and to be given by Dr. R. W. Hargadine, the Resident Physician.

'2.—Pulse 72; resp. 12; temp. 98$\frac{2}{5}$°. Pupils normal. The calabar bean to be increased gr. $\frac{1}{4}$ at each dose. Morning dose, gr. $\frac{1}{2}$. Bowels not open, though he has taken ol. tiglii gtt. v.

'3.—No spasms, but rigidity unchanged. Bowels open. Pupils unaffected. As the quality of the calabar bean used was not certain, some of the tincture (♏viij=gr. j) was obtained from Mr. O. S. Hubbell. Mr. H. made it fresh from some of the beans he had lately imported from Liverpool. [They had been used effectively in a number of cases to his personal knowledge, and besides, when imported at Liverpool, some children had died from eating some of the beans found in the sweepings from the ship, as was proven in the trial for manslaughter which grew out of the accident. There was no doubt, therefore, as to the efficacy of the remedy.] This tincture was ordered to be given every three hours, the first dose being ♏x, and each subsequent dose being increased by ♏x.

'4.—Screaming with pain. Taking of the tincture ♏l.

'5.—*Pulse* 64 and stronger; pupils unaltered; appetite much better; pain relieved; had a dark offensive stool; urine constantly drawn by catheter; rigidity as before. Taking of the tincture at evening ♏c.

'6.—*Pulse* 60; resp. 17; temp. 98$\frac{1}{5}$°. Has had none

of the tincture since 11 P.M. Pupils dilated; crying with pain in face and back. The medicine was resumed (♏c) at 10 A.M. At 2 P.M. pupils smaller than before, but not yet normal; quieter.

'7.—There being still no relaxation, the dose of the tincture was rapidly increased to ♏cc every three hours. Evening.—Rigidity somewhat diminished; no opisthotonos.

'9.—Pupils normal; muscles still rigid; passed his urine voluntarily for the first time. Muscular rigidity being still marked, the tincture had been increased to ♏ccc doses.

'10.—Pupils slightly contracted; trismus less marked.

'12.—Much better; sitting up; trismus still marked; pupils normal. Increased tincture to ♏cccl.

'13.—Walks about; no pain; appetite good; muscles all relaxed. Took a final dose of ♏c this morning.

'28.—Discharged well. Has stayed to regain his strength.

'Total quantity of tincture taken in ten days, ℥xvij, equivalent to 1020 grains, or over 100 grains per diem. At no time were the pupils contracted to less than, say, four-fifths of their usual size. The notes of this case were carefully recorded by Dr. R. W. Hargadine.'

To the above case Dr. Keen, in response, as he observed, to my suggestion that the temperature possibly increased towards the evening,* appended a table of pulse, respiration, and temperature for comparison with other cases.

	Pulse	Respiration	Temperature	+ or − difference of Evening Temperature		Pulse	Respiration	Temperature	+ or − difference of Evening Temperature†
Sept. 26, A.M.	104	16	100° F.		Oct. 4 P.M.	68	24	98°	
P.M.	120	18	101·2	+1.2°	„ 5, A.M.	64	13	97	
„ 27, A.M.	108	14	98·4		P.M.	60	16	98·4	+1·4°
P.M.	104	14	96·2	−2·2°	„ 6, A.M.	60	17	98·8	
„ 28, A.M.	84	12	99·4		P.M.	68	16	99	+0·2°
P.M.	72	10	98·6	−0·8°	„ 7, A.M.	66	14	99·4	
„ 29, A.M.	68	10	98·6		P.M.	72	18	98·4	− 1°
P.M.	84	10	96·6	−2°	„ 8, A.M.	74	12	99	
„ 30, A.M.	120	10	99·4		P.M.	108	14	100·8	+1·8°
P.M.	120	12	100·2	+0·8	„ 9, A.M.	84	16	97·8	
Oct. 1, A.M.	120	11	100		P.M.	84	14	98·2	+0·4°
P.M.	108	11	100	0	„ 10, A.M.	72	14	98	
„ 2, A.M.	72	12	98.6		P.M.	84	14	98·4	+0·4°
P.M.	80	10	99·6	+1	„ 11, A.M.	96	16	98·8	
„ 3, P.M.	76	16	99·2		P.M.	80	15	97·2	−1·6°
„ 4, A.M.	68	12	96	+0·2°					

* The case had been quoted in the 'American Journal of Medical Sciences,' January 1871, p. 274.

† This column for comparative observation as to plus or minus I have added.

From this table, which I give above in full, it will be seen that there were fifteen days in which the temperature was taken both morning and evening,* and out of these there were nine in which the evening temperature was higher than that of the morning; one day in which the morning and evening temperatures were equal, and only five in which the evening temperature was lower than that of the morning—three of these days being quite at the outset of the observations.

The highest temperature registered was 101·2°, and that was an evening temperature, and 1·2° higher than the morning one. The highest evening temperature was 2° above the morning one, which was, however, quite sub-normal, being only 96°; and here, I may state, that in this case of Dr. Keen's the temperature was on several occasions remarkably low, being noted as only 96·2 on one occasion, and on several occasions being less than 98°. It is of interest to remark the extreme *lowness of the pulse* also in this case, which occurred on several days, it being registered as low as 60 on two occasions, and on both those the temperature was as high as, or higher than, normal. These figures by no means appear to have been caused by the amount of calabar bean given, as they were noted anterior to the exhibition of the largest doses.

This case formed, as I thought, a very good and interesting companion to my own, and being anxious to ascertain whether other cases of tetanus presented similar variations, I made my desire known in the month of April through some of our medical journals. I am glad to say that this appeal did not prove fruitless, for I had sent to me the details of a third case in which regular diurnal variations of temperature were manifested. This case was watched by, and was under the care of, Mr. E. L. Dixon, in the infirmary at Preston, and to him I here pay my cordial thanks for his courtesy in forwarding to me the admirably described particulars of the case. It was as follows:—

Lacerated wound of palm. Tetanus. Treatment by Chloral and brandy. Euthanasia.

William J., æt. 15, a 'lap-piecer,' a 'mill-hand,' was admitted into the Preston Infirmary under my care in

* One day, October 8, it was only taken once.

the afternoon of February 7, 1871. He had sustained a very severe laceration of the front of the wrist and of the palm of the right hand. In my absence, another honorary medical officer ordered a few sutures to be applied and the wound to be dressed 'antiseptically' with (Lister's) carbolic oil; for, although the injury was very severe, yet having regard to the youth of the patient, I considered it desirable to attempt to save such a valuable part as the right hand. Two days afterwards I removed the sutures and found all beneath in a sloughing state. Charcoal poultices were ordered to be applied on a piece of lint soaked with nitric acid lotion (♏xx ad. oj.). The sloughing continued to extend, and on the 14th the metacarpal joint of the thumb seemed to be laid open. He however took food (the ordinary diet of the hospital), and slept well. The bowels also acted. On the morning of the 16th it was found he could not open his mouth on account of spastic contraction of the masseter muscles, and it was afterwards ascertained that this had been coming on for a day or two. He was up, and said he felt well, but his pulse was 120. It was evident tetanus had come on. He was ordered at once to bed; the common aperient house draught was to be given immediately, and repeated, and also assisted with an enema if necessary; a little opium too was added to the lotion for the wound, which, presenting exuberant granulations in some places, tended in others to sloughing. A consultation with the rest of the honorary medical officers was arranged for 6 P.M. At that time the pulse was 140; the temperature 102°; the bowels had been very freely operated upon twice; the platysma was rigid, and the mouth could only be opened ¼ inch. It was determined to give him ½ oz. brandy with an egg 3tia q. h. 10 gr. chloral hydrate 4ta, q. h. or as often as might be necessary, so as to keep him partially narcotised, and milk and beef-tea in abundance. The question of amputation was reserved till the next day. 17th, 10 A.M.—P. 144, T. 101°. He has had the chloral hydrate twice, and has passed a very fair night, but the sloughing of the wound has increased and the wrist joint is now laid open. It is decided to amputate this afternoon, if he will then bear it, and his parents, who are in the meantime to be consulted, will grant permission. 3.30 P.M.—P. 148, T. 104°. Had a dose of chloral at 2 P.M., and is now asleep, with his pupils contracted. A consultation of the whole of the medical officers was held, and it was decided by the majority—for it came to a vote—that amputation should not then be per-

formed; for it was feared, in consequence of the great increase of temperature, and the excessively rapid and feeble pulse, that he might die upon the table. 9 P.M.—P. 144, T. 103·7°. Bowels opened once to-day. He is now awake; the pupils are of medium size and sensible to light, and he is not in great pain. 18th, 10 A.M.—P. 135, T. 101·6°. Has passed a restless night, and slept very little since 3 o'clock; he also screamed out once from pain, but there is no opisthotonos or any clavic spasm; he opens his mouth ¼ inch. Takes his brandy and egg regularly with the 'feeder,' and also plenty of milk, but not much beef-tea. Perspiration profuse, somewhat acid and *fœtid in odour*. 9 P.M.—P. 156, T. 103·2°, Resp. 40, uneven, Mouth ⅛ inch. Abdomen observed for the first time to be slightly rigid. Bowels opened twice this evening. Had the chloral at 10 A.M. and at 4 P.M. Pupils moderately dilated. 19th, 9.30 A.M.—P. 135, T. 102·3°. Has had a good night, and the mouth seems somewhat more open—¼ inch. Pupils somewhat dilated and sluggish. 9.30 P.M. —P. 140, T. 103·8°. Mouth at least quite as open; neck very rigid, abdomen less so. Bowels not open. Took chloral only once at 2 P.M., and has been sleeping during the day. 20th, 10.15 A.M.—P. 130, T. 100·7°. Looks very much flushed, but has had his brandy very lately; has not required the chloral since 10 last night. Left arm rigid, and abdomen especially so. Bowels not open. To have gr. iv. calomel. 3 P.M.—P. 150. 9 P.M.—P. 128, T. 102·4. Bowels opened at 5. Took a dose of chloral at 6, having had none since last night, as he has been very quiet. Jaws, perhaps, not so tightly clenched (½ inch); muscles of neck rigid; abdomen, perhaps, less rigid. 21st, 10 A.M.—P. 120, T. 100·6°. Although the exact number of the pulse is stated, it must be remarked that it now begins to vary very much even during the time of the visit. Bowels have been again opened. Chloral was given last night at twelve. 9 P.M.— P. 150, T. 100·9°. There is much more rigidity; the mouth is absolutely shut, and he had a severe attack of opisthotonos at 6 this evening. Chloral ordered to be given regularly 6ta q. h. 22nd, 10 A.M.—P. 150, T. 101·9°. Spasmodic contractions occasionally; does not take his food so well, apparently from dysphagia. 9 P.M.—P. 156, very feeble, T. 101·4°. Mind clear. 23rd, 10 A.M.—P. 132, but varies every minute. T. 101·4°. Body very rigid. The dysphagia, or disinclination to food, continued to increase during the day; he refused his medicine, but took his brandy and egg; and at 9 P.M. he

was seized with a severe paroxysm of opisthotonos, and died in five minutes, just before my evening visit. The wound for the last few days looked healthy, exhibited somewhat exuberant granulations, and was cicatrising along the edges in parts. A *post-mortem* examination could not be obtained.

The following is the scale, showing the daily condition of the temperature in the above case, observed for six days, as drawn up by Mr. Dixon:

								+ or — diff. of evg. temp.
February	16.				6	P.M.	102°·	
„	17.	10	A.M.	101°	3.30	„	104· 103·7	+ 2°·7
„	18.	10	„	101·6	9	„	103·2	+ 1·6
„	19.	9.30	„	102·3	9.30	„	103.8	+ 1·5
„	20.	10.15	„	100·7	9	„	102·4	+ 1·7
„	21.	10	„	100.6	9	„	100·9	+ 0·3
„	22.	10	„	101.9	9	„	101·4	+ 0·5
„	23.	10	„	101.4	9	„	death.	

It will be seen that all of the six days in which the thermometer was used twice a day showed the great nightly increase of temperature, excepting one, and that was the day before death. On no occasion was the temperature in this fatal case of tetanus nearly so high as has been observed in cases which have not proved fatal, the highest grade reached being 103·8°.*

I am indebted for some particulars of a *fourth* case, in which for some days the morning and evening temperatures were registered,† to Mr. Poland. The case was one of subacute

* In a series of fatal cases of tetanus, published by myself, in the 'British and Foreign Med.-Chir. Review,' October 1868, the highest temperature noted was in one case (No. 29) 101°. Again, in Dr. Goodhart's thermometric observations in 'Guy's Hospital Reports' (1870, p. 404), a fatal case of tetanus is related with highest temperature at 102°; another at p. 408, with highest temperature at 103·6; and at p. 418, Cases 30 and 38, were fatal tetanus with temperatures of 103·4 and 104·2°. In connection with the description of a tetanus case which I described last session, I have already adduced cases, with a very high temperature, of fatal tetanus (see Trans. vol. iv. p. 12). In the 'Practitioner' for September 1871, Mr. Macnamara, alluding to cases of tetanus treated by chloral, observes (speaking of Indians) that in this disease as long as the temperature is below 100° he would give a favourable prognosis. If it rises to 101°, especially in a morning, there is danger; if it rise suddenly from 99° to 100° or 102° there is imminent danger, and he has seen few cases recover after the temperature has risen to 103°. He observes that after death from tetanus the temperature rises rapidly to about 107°.

† By Mr. F. C. Turner, Mr. Poland's dresser.

traumatic tetanus, which lasted fourteen days, and occurred in Guy's Hospital.

The tetanic spasm commenced on the morning of July 18 with stiffness of the jaws, and the patient (a woman) was admitted July 24, and died August 1, at 8·30 A.M. From the date of admission she was chiefly treated by hypodermic injections of chloral in doses of from 20 to 30 grains every six hours.

The table of the temperature and pulse was as follows:—

			Pulse	Temperature	+ or — of Evening Temperature
July	24	A.M.		°	
		P.M.	100	99	
,,	25	A.M.	90	98·2	
		P.M.	96	98·2	
,,	26	A.M.	,,		
		P.M.	,,		
,,	27	A.M.	,,		
		P.M.	120	101·2	
,,	28	A.M.	140*	100·6	°
		P.M.	120	100·4	—0·2
,,	29	A.M.	112	99·9	
		P.M.	136	100·6	+0·7
,,	30	A.M.	140	100·8	
		P.M.	116	99·4	
,,	31	A.M.	108	99·2	—0·2
		P.M.	116	99·6	+0·4

It will be seen that the above table is incomplete, the morning and evening temperatures having only been taken on five days. Of these in one the morning and evening temperatures were alike; in two the evening was markedly higher (0·7° and 0·4° respectively), and in two it was 0·2° lower, the plus much exceeding the minus figures.

The highest figure noted was 101·2°, and that was in the evening. It may perhaps be presumed that this was higher than the morning range. This figure is, however, not very high for a case which proved fatal.

The last case to which I have to call attention is one recorded in the 'Lancet' for November 4 last by Mr. Croft.† The patient was a boy, aged 14, who had received a cut on the arm, and was admitted into St. Thomas's Hospital on the fourteenth day after the injury with symptoms of tetanus. On the second day after admission the temperature at 12 at noon was found to be 99°; at 8 P.M. it was 100·1°. On the

* Soon after spasm. † See p. 636.

third day after it was 100·1°, at 11 A.M. the pulse being only 74; and at 8·40 P.M. it was 106·7°, the pulse being 100. It appears that no other temperature was taken until the eleventh day, when at 10 P.M. it was 98°, the pulse being also 98. At that time there were no severe spasms, and the boy recovered.

Mr. Croft has, since the above was written, sent me his MSS. of the notes of this case, which are as follows:

Day	Hour	Temp.	P.	Remarks	Day	Hour	Temp.	P.	Remarks
Aug. 12	10 A.M.	99			Aug. 19	9 30 A.M.	97·7	76	asleep
	9·10 P.M.	100·1				9·30 P.M.	98	86	
„ 13	11·15 A.M.	100·1	74		„ 20	9·30 A.M.	98	96	
	8·10 P.M.	106·7	100		„ 21	10 P.M.	98	98	
„ 14	8·20 A.M.	100	112		„ 22	9 A.M.	98	92	awake
	8 P.M.	99	92			10 P.M.	98	100	awake
„ 15	9 A.M.	99·5			„ 23	9·30 P.M.	—	93	
	4 P.M.	—	120			10 P.M.	98·5	120	
	4·30 P.M.	98.9			„ 24	10 P.M.	96·4	86	asleep
	7·30 P.M.	99			„ 25	10 P.M.	98·3	88	
„ 16	8 A.M.	100·2	98		„ 26	10 A.M.	—	85	awake
	9 P.M.	99	82	asleep		10 P.M.	98·5	73	asleep
„ 17	9 A.M.	—	79	asleep	„ 27	10 A.M.	98	75	
	9·30 A.M.	98				10 P.M.	98	73	
	9 P.M.	98·5	107	awake	„ 28	10 A.M.	98	86	awake
„ 18	9·30 A.M.	98	65	asleep	„ 30	9.45 A.M.	—	100	
	9 P.M.	98	80						

The cases of tetanus which I have just read sufficiently coincide with my original one in showing that there is great tendency to augmentation of temperature in the latter part of the day, at any rate in some cases of the disease.

Here I may remark that at the close of the description of my case I made reference to the question whether this variation might not have been owing to the use of medicines administered, commenting on the fact that some agents, such as the bromide of potassium, have been found to cause the temperature to rise in the evening,* and this objection might perhaps be more strongly urged now, seeing that in Mr. Dixon's case, and in Mr. Croft's, the chloral was

* See Dr. Clouston's observations on the effects of remedies in epilepsy and insanity, to which I further allude (see page 97), in the 'Journal of Mental Science' for October 1868, and in the 'Fothergillian Prize Essay' for 1870. I must here, however, refer to the observations of Dr. F. A. Saison on the action of bromide of potassium, and its antagonism to strychnia. Paris, 1868. (See 'Journal of Anatomy and Physiology, vol. iii. p. 471.) He found that the temperature is scarcely ever affected by it, and when it is so, very slight *decrease* is noticed. Dr. Russell Reynolds, writing on the Therapeutic Uses of Bromide of Potassium, in vol. i. of the 'Practitioner,' p. 16, says, that after large doses

used as a remedy, as in my original one. The probabilities, however, of the remedy having anything to do with the nightly rise of temperature are very slight indeed, seeing that the thermal variation in Mr. Dixon's case was observed quite at the commencement of the tetanic symptoms, and when only two doses of chloral had been given. In Dr. Keen's case the calabar bean, it will be remembered, was the remedy used.

Here I may be permitted parenthetically to suggest that a full and precise inquiry into the effects of various remedial agents as well in health as in disease, upon the temperature of the body, and also into their 'modus operandi,' would prove of the greatest interest and utility. We are most of us more or less acquainted with the general effects of alcohol (D), quinine, digitalis, calomel, mercury, lead, iodide of potassium, chloral, chloroform, and many other substances* in lowering temperature, given in certain doses and in certain forms of disease, as well as the more familiar use of starvation, blood-letting, nauseants, purgatives, salines, alkalies, and cold applications, &c., i.e., in fact, the ancient anti-pyrexial or anti-phlogistic system.† Recent experiments on the lower animals also show that the temperature may be diminished or increased by the injection of substances into the blood. Thus, to mention one or two instances only:

the temperature was not reduced below the natural standard; but 'that in some cases where the medicine has been administered to those in whom there was slight pyrexia, a diminution of the abnormal temperature has been observed.'

* I find that Dr. Duckworth observed that emetia (ipecachuana alkaloïd) had the effect of lowering temperature. (See 'St. Bartholomew's Hospital Reports,' vol. v. 1869, p. 222, and vol. vii. 1871, p. 95). *Vide* also Jürgensens' Researches, a note of which is quoted in Duckworth's paper. In one case the temperature fell nearly 5° in 12 hours; in another it fell more than 7° F. The same is observed in woorara and apomorphia-poisoning. (On the latter see Dr. Gee's Paper in 'St. Bartholomew's Hospital Reports,' vol. v. p. 215, 1869).

† Dr. Currie at the beginning of this century was in the habit of treating fever by cool, tepid, and cold water, in forms of immersions, affusion, &c.; but as it appears to me from the tenor of the recent discussions on this mode of lowering temperature in pyrexia, we, at this time, are not so conversant as we ought to be with Dr. Currie's 'Medical Reports on the Effects of Water Cold and Warm as a remedy in Fever and other Diseases.' In vol. i. of this work (p. 77), notice is taken of the practice of treating feverish attacks by cold ablution among the rude natives of Asia and Africa, as described by modern travellers, and especially of this mode of treatment of an epidemic in Silesia in 1737, as detailed by Dr. Hahn in a highly interesting account. In Marsden's book (1811) on the History of Sumatra (p. 189), I find that in fevers, the application of cold water is described as being commonly and systematically resorted to. It is observed, that in fevers they give a decoction of the herb lakūn, and bathe the patient for two or three mornings in warm water. If this does not prove effectual, they pour over him during the paroxysm a quantity of cold water rendered more chilly by the daun sedingin (cotyledon laciniata) which from the sudden revulsion it causes, brings on a copious perspiration.

Billroth found that temperature was increased by injecting leucine, as well as putrid animal substances, and diminished by injecting carbonate of ammonia (E): and curare, among other substances, was found by Bernard to increase temperature.

Some, though not all, of these results are no doubt connected with modifications of respiration and circulation.

The effect also on the temperature of poisoning by several alkaloïds, such as morphia, nicotine, strychnine, curare, picrotine, brucine, thebain, veratria, emetine; also by nitrite of amyl,* quinine and phosphorus,† &c., in the case of the lower animals, have been published by Falck, of Marburg (F), by Lewitzky (G), by Gscheidlen (H), by Tscheschichin (I), by Dulmont (K); and Dr. Oglesby's observations in this country on the effects of opium-poisoning on the temperature are well known (L). I have already alluded (see p. 81) to Dr. Clouston's observations. Illustrations also of the action of morphine, quinine, and atropine in modifying temperature will be found in the report of the Committee of the Medico-Chirurgical Society, on the hypodermic method of injection (see vol. xxxii., 1867). Observations are quoted showing that temperature, as also the pulse-rate and respiration, are increased by the use of atropine; also that quinine raises the temperature, whilst it is diminished by morphine.

I cannot resist the opportunity of citing the statement of

* Dr. Horatio Wood's experiments (see 'American Journal of the Medical Science,' July 1871, p. 58), show that nitrite of amyl lowers the temperature of warm-blooded animals, apparently by checking tissue changes. In one case a pigeon remained thoroughly conscious although the temperature was reduced 13 degrees below the standard. A pigeon survived the reduction in temperature of 8°.

† In a case of acute poisoning by phosphorus, related by Dr. Habershon in the 'Medico-Chirurg. Transactions,' vol. l. p. 87, the patient, a woman, æt. 28, was brought into the hospital five days after the poison was taken, and the temperature was 89·8°; four hours later it was 91·5°. She died in 8½ hours after admission. In Dr. Tüngel's 'Klinische Mittheilungen von der medicinischen Abtheilung des allgemeinen Krankenhaus in Hamburg,' for 1861, are related (see p. 125) sundry cases of poisoning by the drinking of liquids in which phosphorus lucifer-matches had been dissolved. In these, taken together, the pulse and temperature showed by no means any great or constant variations; but one or two of the cases are interesting in this respect. Thus, in Case 12, the temperature when the patient was admitted was 100·85 F. (30°. 6 R.) Three days later it was 99·5° F. (29°. 8 R.) In the evening of that day it was normal. On the evening of the next day it was 97·25° F. (29° R.). Later on it was normal. She recovered. In Case 13, when admitted three days after drinking the poison, the temperature was 97·7° F. (29·2° R.). On the following morning it was only 28·2° R. On the next day it was 97·25° F. (29° R.), and in the evening 97·7° F. (29·2° R.). It afterwards rose to 99·95 F., and after diminishing again 100·4° F., she recovered. In other cases the temperature was not apparently affected. In Case 18 the temperature numbers were as follows:—At first 100·85° F., then 99·95°, then 100·4°, then only 95°; being in the evening 98·15°, then 97·25°.

Mr. Swan that the ganglia of the sympathetic nerve are rendered very vascular in animals poisoned by gamboge, arsenic, strychnia, and mercury.*

Careful examination of the results arrived at by these authorities shews great discrepancy (as may be seen from some of the notes I record) to exist between them, and I suppose I do not err when I say that our knowledge as to the effects of agents on temperature in health and disease is at the best fragmentary and imperfect. This, I venture to suggest, is a large and important, though difficult, field of observation, which would amply repay cultivation, and might well be worked by such a society as this.

I may observe that my friend Dr. E. L. Fox, of Clifton, is at work on the effects of drugs upon temperature. To show what interesting and unlooked-for results may come out of this line of investigation, Dr. Fox informs me that although, according to his observation, quinine will 'reduce the temperature 8° in intermittent fever, yet he finds that very large doses will do nothing similar in acute tubercle or in puerperal fever, and very little in galloping consumption (rapidly fatal broncho-pneumonia): whilst in more chronic cases of broncho-pneumonia and of tubercle, the effects of 4-grain doses two or three times a day is often marvellous.'

Of course the cases which I have adduced of tetanus with evening exaltation of temperature are quite inadequate, from their scanty numbers, for purposes of generalisation; but if a series of cases should eventually justify us in assuming that a nightly excess of temperature is an event to be expected in tetanus, it would be very natural to enquire what is the explanation or interpretation of this increase.

In my short note to the weekly journals above alluded to, in offering the conjecture that possibly this thermal variation in a case of true tetanus, 'might be found to obtain generally or even universally,' I suggested that regularity of variation might especially 'be anticipated in those cases which, according to some observers, have more or less a periodic or intermittent character.' I remarked that 'if variations should be extensively observed, it may be that fluctuations may exist which are peculiar to one or other form of tetanus;'†

* Mr. Swan, who in his 'Treatise on Diseases and Injuries of the Nerves' (1834, p. 321), speaks of the great vascularity of the sympathetic ganglia induced by several medicines, at p. 336 specifies nux vomica, and at p. 349 mercury as causing inflammation of the ganglia.

† Possibly the course of the temperature in traumatic may be different from that of the so-called idiopathic form of tetanus.

also that 'it would be a point of much interest to enquire further upon what such variation might depend,' and that 'it would be a question whether these variations have any relation to such changes in the texture of the spinal cord as are found to have supervened in some instances of fatal tetanus (or I may add, have any relation to the vascular changes therein) by reason of the intimate communication between the so-called sympathetic system, and the spinal cord.'* I allude to the observations on the morbid histology of the spinal cord in tetanus, by Rokitansky, Wedl, Wagner, Demme in 1860, Fleckner in 1861, Eisenmann and Oppolzer in 1862, Wunderlich, etc., etc., some of which have been corroborated by Dr. Lockhart Clarke and Dr. Dickinson in this country. These have been already adduced by myself in a yet unfinished paper containing a number of cases of tetanus which I published in the 'British and Foreign Medico-Chirurgical Review' for October 1868, and later.

In reference to structural changes in the nevous centres which may occur in tetanus, I would cite cases on record in which abscess has formed in those centres; and in my paper, alluded to above, on tetanus, are several cases in which softening of the spinal cord was produced. Mr. Poland, in his article on tetanus in 'Holmes's Surgery' (vol. i. p. 309), alludes to two cases of tetanus in Guy's Hospital, in which loss of power over the extremities existed.

I think it a question still to be solved how far the alteration in the structure of the nervous centres, found as well in fatal cases of tetanus as in other nervous affections, is due to vascular congestions or increased blood temperature induced in the course of the disease. As regards the latter point, we must remember that even the muscular tissue has been found by Zenker, Kühne, and others (as noted by Demarquay; see his article 'Chaleur' before quoted) to undergo retrogressive alterations under the influence of high temperature. Weickert showed that at a temperature of 109·4 F. the fibrine of the blood is coagulated in the heart and vessels. Dr. Thudichum (see Reports of Privy Council, 1868, p. 130) speaks of decomposition of the nerve sheath (which consists of cerebric acid) by external heat radiated on the part, or by fever-heat operating through

* At this point I would quote the observations of Dr. H. Fischer, of Breslau, who experimentally came to the conclusion that a centre exists in the cervical part of the spinal cord which possesses the power of regulating the temperature (see 'Central-Blatt f. die medicinisch.,' Wissensch, 1869, p. 259.)

the blood, as well as being produced in tetanus and many brain diseases attended by delirium.

I may here appropriately remark that there are not wanting observers who seek to prove that those conditions which we class under the name of fevers (conditions in which a nightly increase of temperature is mostly observable) are in truth states resulting from an unwonted condition of the central nervous system. Thus, to quote names of most repute, *Wunderlich** observes that an unprejudiced consideration of the phenomena of fever leads us rather to ascribe the chief share in them to the agency of the nervous system.

Virchow again† held that the rise of heat in fevers arose from a cause which could only be found in the nervous system. Bernard‡ considers fever to be purely a nervous phenomena. Traube has pronounced strongly in favour of the vaso-motor system being affected by the fever poison, and thus bringing about the symptoms of fever.§ Another German, Tscheschichin|| looks on fever as a morbidly-increased activity of the spinal centres in consequence of a weakening or paralysis of the moderating portions of the brain, by which a number of chemical processes are increased to an extent which is never attained under normal conditions of the functions of the brain. Others, such as Jaccoud, are, however, unable to accept the view that fever depends on paralysis of a nervous centre for regulating heat. Whatever part the central portions of the nervous system may play in the increase of temperature in disease, we must of course allow that the vasal nerves, as well those which contract the vessels, as those which actively dilate them (if such there be) are intimately concerned; and that the phenomena of fever have much to do with disturbance of the so-called sympathetic nerve: and that an arrest of the natural loss of heat by radiation may lead, by causing its accumulation, to an increase of general temperature as much as an actually and positively increased production of heat. To what extent in these cases of tetanus the nightly increase of heat may be connected with increased change of

* See his 'Medical Thermometry,' p. 184. 'Syd. Soc. Trans.' Quotation from his article 'Das Fieber,' 1842, in the 'Archiv. f. Phys. Heilk.' ii. p. 6.

† See his 'Handbuch d. Spec. Path. u. Ther.' i. p. 33 ff., as quoted by Wunderlich, p. 155.

‡ 'Allgem. Wiener Med. Zeitung,' 1859, Nos. 23 and 24, as quoted by Wunderlich, p. 185.

§ See 'Medical Times and Gazette,' 1863, August 1.

|| 'Deutsch. Archiv. f. Klin. Med.' 1867, ii. 588, quoted in Wunderlich's work, p. 190.

tissue or blood, increased formation of urea,* or kreatinine,† or of the phosphates, &c.; or with alteration in the amount of the components of the blood in accordance with the observations of Audral,‡ are questions which are, all must think, worthy of solution.

I cannot here forbear quoting other highly interesting instances of non-pyrexial disease in which the temperature has been observed to be much higher in the evening. In the first place I will allude to the four cases of diabetes (a disease known to be sometimes connected with affections of the nervous system) published by Dr. B. Foster, of Birmingham, in the 'Journal of Anatomy and Physiology.§ In these cases Dr. Foster observed that the temperature in diabetes was always below the normal standard, and that in recent cases it was always higher in the evening than in the morning; the rise and fall not being proportional to the amount of sugar passed.‖ In a letter from Dr. Foster he informs me that out of eight or nine cases of diabetes there was a rise of the evening temperature in all cases. In search of other instances of ascertained or presumed affections of the nervous centres in which evening temperature was exalted, I have found records of cases of tubercular meningitis, in which this occurred.¶ Thus, Dr. Bradbury

* Dr. Goodhart (see 'Guy's Hospital Reports,' *loc. cit.*), records a fatal case of chorea in which the urine contained so much urea that it became solid on adding nitric acid; yet the temperature continued low until just before death, when it rose to 103°. He quotes the observation of Becquerel (p. 372), that one degree of heat was produced by each forcible contraction of a man's biceps.

† Since writing the above I have read a paper in 'Virchow's Archiv.,' 1869, (vol. xlviii. p. 295) by Dr. Senator, on the urine in tetanus. From analyses in two cases, he concludes that in this disease there is *no increased excretion* of urinary material.

‡ See 'Medical Times and Gazette,' January 1, 1870.

§ Vol. iii. p. 377.

‖ In some cases of diabetes under my care, some of which have been reported (see 'Lancet,' April 1, 1871), the temperature was noted as unaffected. In a patient of mine, a woman, at the present time, however, with diabetes in St. George's Hospital, the temperature is, as a rule, much above the normal standard, complication being discernible. [This patient subsequently died suddenly, having albuminuria.)

¶ I would also allude to the case of phthisis published by Dr. Bradbury, of Cambridge, in the 'Lancet' for October 28, 1871, in which the evening temperature was often somewhat greater than that of the morning; and for several days before death the temperature resembled that of typhoïd in the third week. Dr. Bradbury has since then informed me that he has under his care the case of a patient suffering from hydro-pneumothorax (whether secondary to phthisis or due to the rupture of an emphysematous vesicle is doubtful), whose temperature for some time closely resembled that of typhoïd fever, so closely indeed, that for a long period the man appeared to be suffering from that disease. This was not, however, the case when the man was admitted into the hospital (July 28), although on or about the 24th of October, he was attacked with typhoïd, and is now in a precarious

of Cambridge, informs me that instances have come under his care,* and Dr. Mickle of the Derby Asylum, has given me the details of two cases of *general paralysis of the insane*, in which at one period the evening temperature was notably higher than that of the morning.

The following are abstracts of the cases.

Case 1.—The patient had had general paralysis more than two years: this had so far advanced that recumbency on a water-bed was imperative; the mental powers very weak. Several days before death, and prior to the visceral complication which preceded death by a few days, the morning and evening temperature for ten days were as below; the last day in the table being precisely a month before the day of death.

Day		Temperature	Plus or Minus of Evening Temp.
1st	M	97°·2	
	E	98·6	+ 0°·4
2nd	M	96·6	
	E	99·2	+ 2·6
3rd	M	96·3	
	E	99·8	+ 3·5
4th	M	97·1	
	E	99.7	+ 2·6
5th	M	96.8	
	E	100·3	+ 3·5
6th	M	96·3	
	E	98·3	+ 2
7th	M	96·3	
	E	100·4	+ 4·1
8th	M	96	
	E	98	+ 2
9th	M	96·9	
	E	100·4	+ 3·5
10th	M	98	
	E	100·3	+ 2·3

state. More recently, Dr. W. Ogle, of Derby, has given me the thermal chart of a case of phthisis which was under his care, showing remarkable evening exacerbations of temperature. An evening rise of temperature in leukhœmia is mentioned by Dr. Goodhart in 'Guy's Hospital Reports' (*op. cit.*) p. 399, as occurring in one case (man, æt. 30) but this did not exist in a second case (child, 18 months), neither did it occur in a case of leukhœmia which recently existed in St. George's Hospital. In a case also of poisoning by phosphorus, Dr. Knovenagel ('Berlin. Klin. Wochenschr,' 1869, No. 16), describes an evening elevation of temperature.

* In the article 'Chaleur,' in the 'Nouveau Dict. de Méd. et de Chirurgie,' by Demarquay (p. 809, vol. vi.) it is stated that 'granular meningitis' is distinguished from simple meningitis by not being attended by elevation of temperature, and sometimes by a lowering of that which previously existed, in spite of the rapidity of the pulse.

In this case the evening pulse was on the average two beats higher than that of the morning.

Case 2.—The patient had suffered from general paralysis for at least a year-and-a-half at the date of the temperatures given below, which was three months before death. He had marvellously recovered from severe and prolonged epileptiform attacks, and was suffering from symptoms of advanced paralysis with extreme dementia.

The temperatures for eight days were as follows:

Day		Temperature	Plus or Minus of Evening Temp.
1st	M	97°·3	
	E	99·4	+ 2°·1
2nd	M	97	
	E	98·6	+ 1.6
3rd	M	97·5	
	E	98·2	+ 0·7
4th	M	97·4	
	E	98·2	+ 0·8
5th	M	97·5	
	E	99·6	+ 2·1
6th	M	97	
	E	97·2	+ 0·2
7th	M	98·8	
	E	98·8	
8th	M	97·6	
	E	99	+ 1·4

Dr. Mickle informs me that he is preparing a paper on the subject of the temperature in general paralysis of the insane for the 'Journal of Mental Science.' I may say that one or two friends who have charge of the insane in our public asylums have promised to observe for me the morning and evening temperatures in certain cases. In connection with the above cases I may quote four cases of mania remarkable for their low temperatures recorded by Löwenhardt in the 'Allgemeine Zeitschrift f. Psych.' xxv. 1868.* In these cases the temperature, in addition to being low,† was much higher in the evening than the morning. After death in one case grey degeneration of the posterior part of the spinal cord, in another chronic myelitis

* Cited in the 'Central-Blatt' for 1869, p. 300.

† In one case the temperature for many weeks varied from between 25° and 35° C., and during the last three days between 25 and 31·35° C. In the second case on the evening before death it was 30·8°, and 29·5° C. shortly before death. In the third case, it was during the last five days of life from 23·75 to 31·5° C.; and in the fourth case, for two days before death, it was from 28 to 30·8° C.

of the lateral columns were found, and in both others the colour of the posterior columns was altered.

Chorea, again, is another affection of the nervous system, in which exaltation of evening temperature may be found. I append below the morning and evening numbers of a case which was under my care in St. George's Hospital. The cause was apparently fright, and the patient was a girl, Isabella W., aged 12 (admitted April 17, 1871). There was (a rare event in this disease) occasional strabismus. Muscular power was equal on both sides of the body. She got well under the use of wine and good diet, purging, cod-liver oil, quinine and iron. Shower-baths made the symptoms worse.

Day		Temp.	Plus or Minus of Evening Temp.	Day		Temp.	Plus or Minus of Evening Temp.
1st	M			12th	M	100°·2	
	E	99°·6			E	100	+0°·2
2nd	M	98·8		13th	M	99·4	
	E	99	+0°·2		E	98·8	+1·4
3rd	M	97·2		14th	M	98·4	
	E	98	+0·8		E	99·2	+0·8
4th	M	99·8		15th	M	99·4	
	E	99	+0·2		E	99·8	+0·4
5th	M	99·6		16th	M	101·8*	
	E	99·4	−0·2		E	99·6	−2·2
6th	M	97·6	+2·4	17th	M	98·9	
	E	100			E	98·6	−0·3
7th	M	99		18th	M	98	
	E	99			E	99	+1
8th	M	98		19th	M	98·2	
	E	101	+3		E	99	+0·8
9th	M	99·2		20th	M	99·6	
	E	99·8	+0·6		E	98·6	−1
10th	M	100		21st	M	98	
	E	99	−1		E	100	+2
11th	M	97					
	E	98·8	+1·8				

In conclusion I may remark that on looking over systematic works on medicine, or particular descriptions of tetanus, such as those of Wunderlich, Billroth, &c., whilst reference is made to the high temperature often observed in that disease (to which I alluded in my communication last session) and especially a short time before death, I can find no indication of diurnal rise and fall having been noticed.†

* Increased by fear of the shower-bath.

† Neither among the charts at the end of Wunderlich's work, showing temperature, pulse, and respiration in various diseases, nor among those given in the

I regret much that I have been unable within the last year to collect more observations on the temperature of tetanus than the above; but at the present time, when the thermometer, by which we estimate expenditure of nerve force and change of tissue, is as indispensable in our clinical wards (both as an auxiliary means of diagnosis and in point of scientific interest), as are the stethoscope and the spirit-lamp, it will, I think, be conceded that even a single case, if registered with accuracy and fidelity, has its proper value, irrespective of any provisional inferences to which it may at the moment give rise. I would say that Mr. Poland has very courteously promised to procure for me daily temperatures of cases of tetanus that may occur in Guy's Hospital, and I shall be thankful to any members of this Society who will kindly perform for me a similar office, or will themselves bring illustrative cases before our notice at any subsequent meeting.

I hope on a future occasion to have the opportunity of bringing before the Society some observations on variations of the temperature in various neuroses, and particularly in certain forms of paralysis.

Note A. (*See page* 72.)

See a communication by Mr. F. M. Mackenzie in the 'London Hospital Reports,' vol. iii., 1866, p. 453, in which he says, 'the temperature (in cholera) will rise 2° F. after a severe attack of cramps. This may be caused by the muscular exertion and consequent acceleration of the respiration at the same time.'

Note B. (*See page* 72.)

Dr. Woodman, in a note to his excellent translation of Wunderlich's work on the 'Temperature in Diseases,' p. 225, suggests that the high temperature in some cases of chorea, and perhaps of epilepsy, may be the result of muscular action. Dr. Saunders, of the Devon Asylum, informs me that an increased temperature is well marked during the epileptiform attacks which generally occur among general paralytics. In his 19th Annual Report of the Asylum,

'Nouveau Dict. de Med. et dé Chirurgie, &c.,' under article 'Chaleur' (vol. vi. pp. 784-5), are there any charts referring to tetanus.

P.S.—Since writing the above I have observed in Mr. Croft's article on Traumatic Fever in 'Holmes's System of Surgery,' vol. i., that among certain thermal charts appended is one (No. 6) showing the temperature in a case of gunshot wound of the hand, and trismus, under the care of my colleague, Mr. Holmes, in which on three or four days there was an evening exacerbation of temperature.

1864, p. 13, he alludes to the rise of temperature on the access of maniacal excitement, and also during the 'congestive attacks' when epileptiform fits or complete coma suddenly come on. He describes the case of a general paralytic patient where temperature had for some time been 96°, but an hour after a congestive attack with twitchings of the extremities the temperature rose to 105°, and on the following day to 106°. The patient died thirty-six hours after the beginning of the attack.

This rise of temperature after the epileptic attacks I should be inclined to ascribe rather to the state of cerebral congestion than to the muscular exertion, inasmuch as (referring to the case just quoted) the muscular exertion does not seem to have been very extreme, and if it had even been considerable it would hardly have accounted for a rise up to 106°.

With this fact would correspond the increased temperature of the head found to have been produced by mental exercise.

In the 'British Medical Journal' for October 28 last, are some observations on General Paralysis by Dr. Hitchman, of the Derby Asylum, in which he describes (p. 495) very high temperatures occurring as this disease advances. Tscheschichin found the injection of curare produced a decrease of temperature until cramps set in, when it became increased ('Pflüger's Archiv.', 1869, p. 441). Dr. Burdon Sanderson, in his report on cerebro-spinal meningitis in the lower Vistula (see report of the Medical Officer of the Privy Council for 1865, p. 265), observes that in this disease the temperature, which is ever high, and seldom below 100°, was always increased during exacerbations of pain.

In his article 'Chaleur' in the Nouveau Dict. (*op. cit.*) Demarquay quotes Elie, Leyden and Paul Ladame as having, like Wunderlich, found the temperature increased towards the end of fatal cases of a convulsive character. Leyden, Billroth, and Fick found similar results in the case of dogs artificially tetanised.* It must also be borne in mind, however, that the tendency in cases where pain is experienced is to a diminished temperature. This is illustrated by experiments of Horwath (see Central-Blatt, 1870, p. 546).

Tscheschichin also (see Reichert's Archiv., 1866) came to the conclusion by experiments that the cramps produced by certain poisons increase the internal temperature of the body. In the Archives Generales for 1868, vol. i., p. 113, are some observations by Charcot and Bouchard on variations of central temperature in certain convulsive affections, which establish an important difference betwixt tonic and clonic convulsions. In the former, such as those from tetanus, cholera, epilepsy, also from strychnia-poisoning and faradization, there is a notable increase of central temperature; whilst in the latter, as in chorea and paralysis agitans, it is not appreciably affected.

Mendel, in a paper quoted later on (p. 96), alludes to the re-

* See allusions to these experiments in 'Trans. of Wunderlich,' p. 154.

searches of Ziemssen on the development of heat in man and the lower animals by muscular contraction (see Ziemssen's 'Electricität in Med.,' 1866, s. 27, &c.). Dr. Auchenthaler describes a case of trismus nascentium treated successfully by chloral, in which the temperature during the convulsions was seldom augmented, and never rose beyond a slight extent; see 'Central-Bl. f. d. Med. Wissensch.' 1871, No. 17.

Note C. (*See page* 72.)

This observation of Dr. Barnes is alluded to by Dr. Woodman in a foot-note of his translation of Wunderlich (p. 155). Dr. Woodman refers to the teaching by Dr. Barnes regarding fever as resulting from the decomposition of uterine tissues in excessive labour. Dr. Barnes has pointed out to me his Lectures on Puerperal Fever published in the 'Lancet' for 1865, respecting this subject. In the lecture for March 25 I find he has some highly-instructive remarks on the expenditure of nerve and muscle in labour, and on the consequent production of a condition analogous to the state of exhaustion in typhus. He remarks that he has 'known fatal pneumonia, pleurisy, and pericarditis ensue upon excessive physical exertion.'

Mr. Squire, in the ninth vol. of the 'Obstetrical Society's Transactions,' records observations showing that in a natural and easy parturition the temperature is but little altered; it is, however, different with severe labour. Schroeder (Virchow, Archiv. No. 35, s. 265) found an elevation of temperature of the uterus of a woman in labour.

Dr. Braxton Hicks and Mr. Carey have recently (see 'Guy's Hospital Reports,' vol. xvii., 1872, p. 447) published a series of observations on temperature during parturition and in the puerperal state. The results are very variable indeed. In many cases where the forceps were used (probably all with chloroform inhalation) the temperature after delivery was much increased; but this was not so in all, as for instance in case 8, in which on the evening after delivery it was only 99·4, and on the next day 98·6 A.M., and 97·7 P.M. In several cases the temperature was taken *during* delivery, and even then it was not high. Thus, for example, in case 9, during the second stage it was only 98·5, and immediately after delivery 98·6. It was higher afterwards, being 99·2 on the first, second, and third mornings. In case 10 it was only 97·4 at three periods, before delivery, after delivery, and on the first day afterwards. In case 23, which was a tedious, very severe labour, it was 100 during the second stage, and 101·2 immediately on delivery; subsequently it got higher. In case 25, during the first stage it was 98·8, during the second stage 99·6, and immediately on delivery 99·4; on the first day afterwards it was only 98·2. In case 26 it was 98·2 during the second stage, and 97·7 immediately after delivery. In case 27, in a labour of twelve hours' duration, it was, from eight to twelve hours before delivery, 98·2, and rose after for a few hours to 99·5, sinking in about the same time to 98·2. In case 28, a labour of twelve hours, during the whole labour

it was 97·8; directly after birth it sank to 97·0; by the end of twenty-four hours it was 97·8, and so continued for some days. In looking over the cases no correspondence was found between the temperature and the rate of the pulse or respiration. In one case the temperature rose *after venesection*; in another it was reduced by an aperient, and in some cases the temperature in the axilla differed according as the mammary glands contained milk or not. In some cases the morning and in others the evening temperature was the highest. In this paper it is a matter of regret that the exact hour of the morning and evening when the temperature was taken is not recorded.

I wish, in passing, here to refer to the recent work of Professor Winckel, of Rostock,* on the Pathology and Therapeutics of Childbed, in which he gives the course of the temperature in childbed when undisturbed by disease, quoting authorities on this subject, viz. Dohrn, Wolf, Grünewaldt, Schroeder, Baumfelder, &c. The relations of pulse to temperature are also given in a table. Within the first twelve hours of delivery it is stated that a slight ascent of temperature occurs, the height of which but little, if at all, exceeds the limits of normal variability. In the second twelve hours occurs a slight descent. Evening temperature is generally higher than the morning. The temperature of healthy lying-in women does not vary more than that of healthy persons generally. The average temperature, nevertheless, is something higher than in other persons, since it runs normally within the space between 98·9° and 100·7°.†

Note D. (*See page* 82.)

With the view of further showing the interest which attaches to observations on the effects of different agents on the temperature of the body, I propose at this place to subjoin a necessarily brief list of allusions to experiments which from time to time have been conducted both in England and abroad on the subject. Space will, of course, not permit me to do more than draw attention to them. I do not propose now at all to critically examine the results or the *modus operandi* of the action of the agents as suggested by experimenters, nor will I tarry to point out the numerous discrepancies requiring reconciliation, in the results as put forward by observers.

I cannot do better than preface these allusions by a reference to that interesting work already quoted of Dr. Currie, 'Medical Report on the Effects of Water in Fever and Febrile Diseases" (a work in which he singularly anticipates almost all that physicians and physiologists have quite recently been doing in the way of treating pyrexia, and so-called hyperpyrexia, by cold).

Speaking of the changes in digestion, respiration, and perspiration

* Berlin, 1869.

† Dr. Wiltshire relates an interesting case in the 'Trans. of the Obstetrical Society' for 1871, vol. xii. p. 376, showing the rise of temperature on the advent of lactation, the maintenance of it during the establishment, and its fall on the completion of the process.

on which the temperature depends, and of the comparison between them and the temperature, at p. 241 of vol. ii. he observes as follows: 'The effect of different medicines on the animal temperature would likewise be submitted to experiment; a new light would be cast on their mode of operation, and more accurate ideas laid down for their administration.' Recent researches bring us very near the realisation of Dr. Currie's hopes.

I will first glance at researches on the action of *alcohol* in affecting animal temperature.

Passing over the observations of Dumeril and Demarquay, in 1848, and of Perrin, Lallemand and Duroy, I would allude to those of Jacobi, of Fulda, as recorded in the 'Deutsche Klinik.' for 1857.

Ringer and Rickards (see 'Lancet,' vol. ii., 1866, August, p. 208) brought before the Medico-Chirurgical Society observations on the influence of alcohol on the temperature of febrile and non-febrile persons, and also on rabbits. In two out of three non-febrile cases treated by poisonous doses of alcohol, the depression amounted to 3° F. In a third case, which was little influenced, the patient was a confirmed drunkard, showing that habit probably obviates the effect. In the case of two rabbits injection of alcohol into the rectum lowered the temperature 15° F. It seemed that the depression of temperature in the case of the two patients was not due to the vomiting occasioned. When alcohol was given in ordinary (non-poisonous) quantities to non febrile persons, only a very slight depression of temperature was caused. In febrile persons only slight and temporary depression of temperature followed the use of alcohol either in poisonous or in ordinary quantities. From observations it appeared certain that alcohol increased the force of the *pulse*, but lessened its frequency. In the 'Practitioner,' vol. iii., p. 137, are given important results arrived at by Binz, of Bonn, on the action of alcohol on animal temperature. He alludes to the experiments in 1852 by Lichtenfels and Fröhlich on the action of non-poisonous doses of alcohol, also to those of Tscheschechin and of Möller, and gives results of his own experiments on dogs and rabbits, as showing that alcohol in small quantities lowers temperature, and he considers the various explanations of this action. In vol. v. of the same publication (see p. 1, July 1870) are given by Dr. Binz interesting results on the action of alcohol upon animal temperature in paralytic fever. He concludes from experiments in which the spinal cord was injured, that quinine is an antipyretic, by virtue of its lowering in a distinct way the processes of oxidation within the vessels and tissues, though it is also admissible that quinine may have an immediate action on a supposed *centre in the brain for moderating temperature*. His experiments seemed to show that the separation of the moderating centre of warmth from the whole frame does not prevent the antipyretic action of quinine and alcohol. In vol. li. of Virchow's Archiv., record is made of certain experiments made by Quincke and Naunyn tending to show that the depression of temperature produced by quinine and alcohol is due to its nervine effects; and of a repetition

of these experiments by Binz, who is more inclined to attribute the result to their direct effect on the animal fluids, and their action over tissue metamorphosis. In his paper hereafter alluded to on the antipyretic influence of quinine (see p. 98), Liebermeister, of Basle, gives several thermal scales in cases of pulmonary phthisis, as well as in abdominal typhus, variola, erysipelas, rheumatism, pneumonia, &c.; as well as thermographs showing its action in *health* (see Deutsches Archiv. f. Klin. Med., 1867, Band. iii., pp. 23 and 569).

I would refer here to Dr. Goodhart's thermometric observations already quoted in 'Guy's Hospital Reports,' vol. xv., 1870, showing the action of alcohol and quinine, specially the latter, in reducing the temperature of fever.

Cuny-Bouvier, of Rome (see Archives Gen. for July and August, 1871, p. 203), also Dr. Ruge, of Berlin, found a lowering of temperature after the use of alcohol in large or in small doses, notwithstanding increase of the pulse (Virchow's Archiv., vol. xlxix., p. 252) but Obernier, of Bonn (Archiv. f. Physiol., 1869) came to the conclusion that, except in poisonous doses, alcohol does *not* lower temperature. I have myself certainly found among febrile patients at St. George's Hospital, as in cases of typhoïd fever, that alcohol, in moderate doses, did not reduce temperature perceptibly.

In Dr. Richardson's Lectures on Experimental and Practical Medicine (see 'Medical Times and Gazette,' December 18, 1869, p. 704) there was a slight increase of temperature in the first or exhilarative stage of intoxication by common or ethylic alcohol, which precedes the decline that goes on subsequently. Dr. Richardson says that he has seen the temperature of the pigeon reduced from 110° to 102° by alcohol.

Drs. Parkes and Wollowicz concluded (see 'Proceedings of the Royal Society of London,' vol. xviii. p. 363) from experiments, that in a healthy man *small* doses of alcohol, with an equal supply of food, does *not* lower the temperature; they repudiate the proposal to use alcohol as a reducer of febrile heat.

Scheinneson in the 'Archiv. f. Heilkunde,' 1869, records a number of observations on the influence of *chloroform* in lowering temperature, and alludes to the observations of Dumeril and Demarquay on the same subject.

Rabow (see the 'Berlin Klin. Wochenschr,' 1871) found that in twenty-three out of twenty-five convalescents from acute diseases, small quantities of wine caused the temperature to rise 0·7. His observations agreed with those of Obenceu (Central-Bl. 1869 and 1870). A very slight rise of temperature was found after the use of Hungarian wine by Radziejewski (Central-Bl. 1871, No. 32).

Mendel has a paper in Virchow's Archiv., 1870 (p. 12) on the temperature of the cranial cavity in natural and pathological states, in which the influence of chloroform, of chloral, of morphia, and of alcohol is shown, and in which also the different results on the temperature of the head and of the rectum are demonstrated.

According to these experiments alcohol acts differently from the

other substances. In this paper the observations of the following experimenters (amongst others) on the influence of agents on temperature are alluded to, viz., Dumeril, Demarquay, Bouisson, Salzynski, Scheinneson, Deguise, Dupuy, Leuret, Gscheidelen, Fick, &c.

Dr. W. Ogle found (see 'St. George's Hospital Reports,' vol. i., p. 221) that alcohol causes an immediate and rapid fall of temperature, succeeded by a temperature higher than natural. Dr. John Davy also found in the tropics that alcohol produced a lowering, and this was followed by an increase of temperature. (See 'Physiolog. Researches.' 1863, p. 57.)

Ferber, in an article on *digitalis*, in 'Virchow's Archiv.' (vol. xlvii. p. 151, 1869), alludes to its power of lowering temperature, and to observations by Henkel and Leyden as to the mode of interpreting the fact.

In observations on the action and therapeutical properties of *carbolic acid*, Ernest Labèe (see 'Archiv. Gen.' October 1871), found that it produced a decided lowering of temperature, and hence he suggests its use in febrile states.

Dr. Clouston in his 'Fothergillian Essay' (1870), on the action of neurotic medicines on insanity (alluded to at p. 81), speaks of his observations on the influence of opium, Indian hemp, bromide of potassium and whisky, on the temperature as well as on the pulse, the appetite, weight, &c. He found that the tendency of opium in maniacal excitement when temperature is higher than in health, was slightly to raise temperature; that of the bromide and Indian hemp combined to depress it, of the bromide alone to raise it rather more than opium, of the Indian hemp alone to raise it very slightly, and of whisky to lower it most of all. The rise in temperature, which was the immediate effect of single doses of opium, did not last when the drug was given continuously.

Dr. Meryon, in his paper on the sympathetic nerve, in the 'Lancet,' for November 19, 1871, alludes to modifications of the temperature by means of chloral, opium, &c.

Here I would also quote the observations of the committee (consisting of Drs. Baümler, Duffin, and B. Hill) appointed by this Society, on temperature in syphilis. They found (see vol. iii. of the 'Society's Transactions,' p. 170), that in certain cases of syphilis *iodide of potassium* affected the thermal curve within three days from its administration, lowering it remarkably and certainly.

A committee (consisting of Drs. Murchison, Symes Thompson, and H. Weber) appointed by this Society (see 'Transactions,' vol. iii. p. 201), determined to investigate the value of *quinine* as a means of diminishing bodily temperature and pulse in pyrexia, came to the conclusion that large doses of quinine have a marked effect in reducing the temperature in pyrexia (and a less decided effect on pulse and respiration). In a review in the 'American Medical Journal,' for April 1871, p. 505, Winckel's work on childbed already alluded to (see p. 94), the reviewer observes, that it had often happened to him to see in certain patients suffering from puerperal

peritonitis, that after the administration of from 16 to 25 grains of quinine, under the influence of the diarrhœa caused by this agent, the temperature went down from 104° in the morning to 98·6° in the evening. In the epidemic of typhoïd at Basle in 1865–7, as reported on by Leibermeister, quinine given in *small* doses and *continued*, did not much affect temperature. (See the 'Practitioner,' vol. i. p. 190), quoted from the 'Deutsches Archiv. f. Klin. Med.' B. iv. Hft. 3 and 4. The action of quinine in lowering temperature in severe forms of disease, scarlet fever, congested lungs, hooping cough, tuberculosis, &c., is illustrated by Mr. Squire in vol. xii. of the 'Obstetrical Society's Transactions,' 1871, pp. 187, 191, 192, 207, 210, 232. In some cases *Cinchonine* was used with similar results. Dr. Ringer in his 'Handbook of Therapeutics,' p. 401, describes the investigations made by himself and Mr. Gill on the effect of quinine on the pulse and temperature. In their hands quinine did not reduce the temperature in fever cases, except in such doses as 20-grain, and then the depression was only slight.

In the number of the 'Lancet,' for April 13, 1872, are recorded some observations by Mr. Percival at the Homerton Fever Hospital, showing that 3-grain doses every four hours of quinine in fever very remarkably reduced the temperature, and were followed by profuse sweating. Dr. Hamilton, of the Royal Artillery (see 'Indian Medical Gazette,' for December 1870), found that quinine in 5 or 10-grain doses reduced the temperature about 3° F. He recommends its use as a heat-depressor in cases of sun-stroke.

In a recent case of phthisis of my own at St. George's Hospital, the temperature from April 26 to May 21 was taken night and morning, and found to be almost always 100° F.; once or twice 101°. During this time the patient was taking for the most part 2-grain doses of quinine every few hours, with at times cod-liver oil. On the 20th, I gave her 10-grain doses of quinine thrice a day, increasing it to 15 grains on the 24th, and on the 22nd, and from that date to the evening of the 26th, the temperature night and morning was always 99°, except on one morning, when it was 98°. On the 27th, it was reduced to 10-grain doses, and then the temperature went up to above 100°, and so remained until the 31st, when the quinine was discontinued. Subsequently it was again given in 20-grain doses, at first bringing down the temperature to 99° with occasionally a rise to 100°.*

An interesting illustration of the effect of *digitalis* on the circulation and temperature, is mentioned by Dr. Currie in his work before quoted. At p. 165 of vol. i. he mentions a case of epilepsy in which digitalis was tried so rashly that the pulse sank to 32 per minute, and the heat at the axilla to 89° F.

At p. 172, *op. cit.*, Dr. Currie relates the case of a man with tetanus, who from 13th of April to the 11th of May drank 140 bottles of medicine (i. e. five bottles a day), besides ale and *several gallons*

* This case has been reported in the 'Lancet' for July 6, 1872.

of brandy, and from the 13th to the end of April took 5 ozs. 6 drs. of laudanum, and whose temperature, as it is stated, 'notwithstanding the violence of the disease and the vast quantity of wine and opium which he swallowed, was never greater than the natural standard.' It is remarked that 'the superfluous heat which these medicines ought to have produced, was no doubt carried off by the profuse and constant perspiration.' The same author, however, at p. 292 of same volume, observes, that he has found the temperature in the fever of intoxication to rise to 105°, 'nearly the highest degree of heat in the typhus' of the country; and he mentions the case of Dr. Alexander, who found it as high as 107°. At p. 54 of vol. ii. a letter of Dr. Beddoe's is quoted, in which it is stated that in cases of lues treated by nitric acid, the heat of the body increased towards evening from one to two degrees. Regarding the action of *belladonna* in modifying temperature, Meuriot (see 'Practitioner,' vol. i. p. 295) found that in man the temperature is increased by some tenths of a degree. In animals he found small doses increase and large doses diminish the temperature; thus he has obtained an increase of from 2 to 3 degrees, and a diminution of from 4 to 5 degrees, the increase being coincident with increased heart's action, and the diminution with the diminished action of the heart. Mr. Mavor, veterinary surgeon, informs me that he has made many interesting observations showing the power which *atropine*, when injected hypodermically, has of elevating temperature in horses.

Hyoscyamine and daturia were found by Oulmont and Laurent (see 'Archives de Phys.,' 1870, Nos. 2 and 3), in *small* doses to cause slight increase of temperature, while *large* doses lowered the temperature. The *veratrum viride* was found by Oulmont to cause lowering of temperature by 2, 3, or 5 degrees in from 1 to 1½ hours. (See 'Neues Repert. f. Pharmacie, 1868,' quoted in the 'Journal of Anat. and Phys.' vol. ii. p. 424.)

In Dr. Ringer's 'Handbook of Therapeutics,' 1869, are several allusions to the action of remedies in modifying temperature as determined by the thermometer. Thus at p. 183 in one experiment, *tartar emetic* continued in ½-grain doses every 10 minutes for 7 hours, the temperature did not vary more than 0·4° F.

Note E. (*See page* 83.)

See paper in 'Langenbach's Archiv.' vi., on 'Traumatic Fever and Traumatic Affections.'

Note F. (*See page* 83.)

See 'Experimentelle Studien zur Beschaffung d. Temperaturcurven der acuten Intoxicationen,' in the 49th volume of 'Virchow's Archiv.' 1870, p. 457). In this paper Falck alludes to researches of Duméril, Demarquay, and Lecointe in the Comptes rendus (tomes xxxii. and xxxiii.) on the modifications of temperature by the introduc-

tion of therapeutical agents into the body. He also alludes to Munck and Leyden on phosphorus-poisoning, and to Lebert, Wyss, and Kohts, who used the thermometer in experiments on the same subject; and to Neebe, who made researches on poisoning by copper-salts.

Note G. (*See page* 83.)

See paper 'Ueber den Einfluss des schwefelsauren Chinins auf die Temperatur u. Blutcirculation' in the 47th volume of 'Virchow's Archiv.,' 1869, p. 352; by these observations a distinct lowering of the heart's action and of the temperature by quinine is demonstrated.

Note H. (*See page* 83.)

See 'Untersuchungen aus dem physiologischen Laboratorium in Würzburg, 1868,' Hft. iii., where Gscheidlen asserts that morphia in small doses at first elevates the temperature of the body, but at once lowers it in poisonous doses.

Note J. (*See page* 83.)

Reichert's 'Archiv.' 1866.

Note K. (*See page* 83.)

'Bulletin Gén. de Thérap.' vol. lxxiv. p. 145.

Note L. (*See page* 83.)

See the 'Practitioner,' 1870. Dr. Oglesby states that *morphia* and *atropine* lower the temperature at first and then raise it. In the collapse of cholera he found hypodermic injections of atropia and morphia of great assistance owing, as he supposes, to their rapidly increasing the temperature when administered as *small* doses, which is a better mode of exhibiting the remedy than giving it in *maximum* doses. He observes that after the administration of an ordinary dose, in a case where the powers of life are very low, of morphia or atropia, we have a speedy lowering of temperature, an effect which will often last for several hours, to be followed by a rise which is often so quick and so considerable as to place the patient in imminent danger. A very small dose of either very quickly lowers the temperature. This effect is of short duration and is speedily followed by a very steady rise, lasting over several hours. The above statements are confirmed by the result of expements since made.

In a case of cholera treated at St. George's Hospital in 1866 (see the 'Lancet,' for August 25, p. 205), the temperature of the body was notably raised by subcutaneous injections of *opium*. The patient recovered. In a case of cholera treated at the London Hospital (see 'Lancet,' *loc. cit.*) by saline injections into the veins, considerable rise of temperature followed, but then the fluid used (30 oz.) was of a temperature of 110° F. In the same hospital,

large quantities of warm water (5 and 7 oz.) injected subcutaneously (the exact temperature not given), in a case of cholera, by Dr. Beigel, though it quickly arrested cramps, reduced thirst, and increased the action of the heart, *diminished* the temperature. Death ensued. (See 'Lancet' for September 29, 1866, p. 352.) This case is interesting as showing what large quantities of fluid can be injected subcutaneously, and quickly absorbed. On this subject I would refer to some remarks I made on the absorption of water by the serous surfaces or the areolar tissue, in the 'British Medical Journal,' for May 28, 1870, p. 561, alluding to the experiments of Gulliver on this subject.

At p. 127 of vol. ii. of the 'Practitioner,' is noted an experiment by Dr. Buzzard, on the effects of tincture of *aconite* in lowering temperature and pulse.

The action of *aconite* in altering temperature is well shown in a case recorded by Dr. Wilks in the 'Practitioner,' vol. i. p. 329. The case was one of acute rheumatism: the temperature was 102° and the pulse 104. Five drops of the tincture of aconite were ordered every four hours, and on the day but one afterwards the pulse was 64 and the temperature 99°, ten doses of the tincture having been taken. In the number for April 1871, of the same periodical, are observations by Dr. C. D. Phillips, on the action of the aconitum napellus in reducing temperature in pneumonia, &c. Achscharumow found that aconitine caused a lowering of the temperature as well as of blood pressure. (See 'Journal of Anat. and Phys.,' vol. i. p. 154.)

The *gelsemium sempervirens*, a strong poison introduced into the United States Pharmacopœia, is also described (see 'Practitioner,' vol. v. p. 204), by Bartholow, of Ohio, as reducing temperature very decidedly in the pigeon and the cat.

Sulphurous acid in ʒj. doses every two or three hours for twenty-four hours, is also described by Dr. R. Bird, in the 'Indian Medical Gazette' for February 1869, as an agent which reduces temperature, effecting this, as he thinks, by its power of absorbing radiant heat.

I may here mention with regard to *chloral*, that Demarquay (see 'Lancet' for September 25, 1869, p. 455), found that in strong doses it lowers temperature from one and a half to a whole degree centigrade, i. e. to 1·8° F., the pulse becoming exceedingly small.

Dr. Richardson found, however, in rabbits, that a lowering of 6° F. took place, and in birds 1½ grs. of chloral brought down temperature 2°, 2½ grs. lowered it 5°, and 5 grs. lowered it 8° F. (See 'Medical Times and Gazette,' September 4, 1869, pp. 290, 510.)

Mr. Spencer Wells has seen the temperature fall from 104° to 99° after four 20-gr. doses of chloral, given at intervals of two hours (see 'British Medical Journal, March 19, 1870, p. 301); and an interesting case showing the decided effects of chloral in lowering temperature, is given by Mr. Waren Tay in the same journal (April 2, 1870, p. 329), it at one time being 100·4°, and after a 1-drachm dose of chloral it was in ¼ hour reduced to 98·4°; and on one occasion, when

the patient was kept under chloral for twenty-nine hours, it remained below normal (tested several times)—viz., 97 and 67 and 8-tenths. In another place (April 23, 1870, p. 413) in the same journal, mention is made of a case in which one dose (quantity not given) reduced the temperature from 104° to 102°, and a second dose to 99°. In certain observations at the Edinbro' Royal Infirmary (see 'British Medical Journal,' April 30, 1870, p. 433), it was found that in fever chloral appeared to produce little or no effect on temperature. In other cases, however, under the care of Dr. Barnes at the Carlisle Fever Hospital (see 'British Medical Journal' for April 30, 1870, p. 437), chloral had a very decided effect in lowering the temperature as well as the pulse. Dr. Clouston (*loc. cit.*, p. 457) describes similar effects in a case of chorea. Mr. Squire in 'Obstetrical Soc. Transactions,' vol. xii. p. 232, speaks of a case of whooping-cough in which chloral caused no lowering of temperature, while a weak solution of *chloride of aluminium*, in form of spray inhaled, had that effect.

In addition to the references which I before made to the influence of *chloroform* (see p. 96) on temperature, I will now add some observations which Mr. Warrington Haward was so kind as to make for me at St. George's Hospital. To reduce as much as possible the chances of interference in the results by hæmorrhage, &c., cases of operations on the eye were selected, and the results were as follows. The temperature was taken before the operation, and then again very shortly afterwards. They were eighteen in number.

			Before operation	After operation	Remarks
1	M. æt. 65	Iridectomy	99°·2	99°·6	Struggled
2	F. „ 21	Iridectomy	99·	89	
3	F. „ 63	Cataract	99·2	99·4	
4	F. „ 36	Squint	98·8	99·	
5	F. „ 14	„	98·8	as before	
6	F. „ 10	„	99·2	„	
7	M. „ 64	Cataract	98·8	„	
8	F. „ 39	Puncturing cornea	98·6	„	
9	F. „ 9	Squint	99·	„	
10	F. „ 4	„	99·4	„	
11	F. „ 9	„	99·4	99·6	Struggled
12	M. „ 9	„	99·2	as before	
13	F. „ 15	„	99·	„	
14	F. „ 50	Cataract	99·2	„	
15	F. „ 26	Iridectomy	99·4	„	
16	F. „ 40	„	99·8	„	
17	M. „ 30	„	98·8	99·	
18	M. „ 58	„	99·2	99·2	

In passing I would notice the difference between the results of the above chloroform experiments, and those with chloral as previously noticed; a difference which one would hardly have anticipated con-

sidering the supposition generally entertained that chloral acts on the system by being converted into chloroform.

As regards loss of temperature from *loss of blood*, to which at page 82 I alluded, I would here quote a case mentioned by Mr. F. Le Gros Clark (see 'British Medical Journal' for August 29, 1868, p. 213), in which, owing to loss of blood and shock (cut-throat), the temperature registered 91·2 one hour after the accident, and so remained for another hour.

As regards *nitrite of amyl*, alluded to at page 83, I would allude to the observations of Hayden and Cruise in their report of the cholera epidemic in the Dublin Mater Misericordiæ Hospital in 1866, who found that in the collapse of cholera the temperature in the axilla rose from 95$\frac{1}{5}$ to 96$\frac{3}{4}$F. after inhalation of the nitrite for three minutes.

Some observations on the *veratrum viride*, to which I alluded at page 99, by Drasche and Kirmann show that by it, in addition to lowering of the pulse, the temperature almost always falls from 1 to 4°C. (see Schmidts Jahrbuch, Band cxl., 1868, p. 155. In Band cxxxix., p. 282, sinking of the temperature after from half-an-hour to two hours' time as much as 2, 3, or 5° is described by Oulmont. Dr. Ringer (*op. cit.*, p. 299) observes that according to Dr. Squarey's experiments in University College Hospital, the Veratum does not lower temperature in health.

According to Dr. Fraser and others, the animal temperature has invariably been found to rise in rabbits and dogs, but only slightly, from the use of *calabar bean.*

Postscript.—Since making the above communication to the Society, I have met with a short paper by Dr. Macnamara in the 'Practitioner' for September, 1871, named 'Remarks on Tetanus,' in which is related a case of tetanus treated by chloral and calabar bean, that presented interesting thermometric variations. The following table (see page 104) is given, showing the state of the pulse, respiration, and temperature morning and evening, from the 7th, one day after the setting in of tetanus (and sixteen after the injury) to the 31st of the month.

In this table it will be seen how frequently the evening temperature exceeded that of the morning until convalescence was established. No definite proportion existed between the temperature and the rate of breathing or frequency of the pulse, nor was the temperature commensurate with the degree of spasm as, according to the history of the case, from the 10th to the 14th, the spasms of pain were greatest. On this day they became less, and so continued until the 17th; subsequent to the 20th they were merely nominal, and afterwards the patient gradually recovered.

The author observes that in cases of tetanus, if the temperature rises to 101° there is danger: should it rise suddenly from 99° to 100° or 102° the patient is in imminent danger, as he has seen but few cases recover after the temperature has risen to 103°.

A case of tetanus under the care of Dr. G. Johnson was brought before the Medico-Chirurgical Society (see the 'British Medical Journal' for December 10, 1870, p. 642) in which the temperature, pulse, and respiration were described as being natural.

Date of Month	Pulse		Respiration		Temperature	
	M.	E.	M.	E.	M.	E.
7	84	86	18	18	98°	99°
8	84	90	18	24	97·1	99·
9	84	90	18	24	98·	99·
10	90	84	24	24	97·3	96·2
11	90	96	24	24	98·1	97·2
12	96	108	24	30	97·	99·
13	108	108	30	30	98·3	99·
14	114	126	36	42	100·	99·3
15	120	114	30	30	98·3	99·
16	108	108	30	30	98·3	99·
17	120	120	30	42	98·4	98·
18	108	120	24	36	98·4	98·
19	108	108	24	24	97·2	98·1
20	108	102	24	24	97·2	98·
21	108	108	24	30	98·	100·
22	102	108	24	30	99·3	100.3
23	90	108	30	30	99·	100·3
24	96	108	30	30	98·	98·4
25	96	108	30	30	98·2	98·
26	108	126	24	36	98·2	99·
27	108	108	30	30	98·	98·1
28	102	102	24	24	98·1	97·4
29	102	114	24	24	98·3	98·3
30	102	96	24	24	98·2	97·4
31	96	90	24	24	97·4	97·2

XVII.—*Two Cases of Popliteal Aneurism, and the Treatment adopted.* By J. Cooper Forster. *Read January* 26, 1872.

I HAVE nothing novel to offer in the following cases of popliteal aneurism, though they are typical of the treatment I usually adopt; but I venture to lay them before the Society to elicit from the members the plan followed by them in instances of this disease.

Case I.

John M., æt. 35, a labourer at Orpington, was sent to me by Dr. Poole, of St. Paul's Cray. The patient was admitted into Guy's Hospital on October 24, 1871. He is an intemperate Irishman, with good general health, and he never had any illness other than epistaxis ten years ago. He is unmarried, and has had no venereal complaint.

He states that ten days before admission he noticed pain in the left knee, and thought it rheumatism. Five days afterwards he noticed a swelling in the popliteal space, and numbness about the ankle. He does not remember any strain or injury of any kind.

In the left popliteal space is a tense pulsating swelling, filling it out. The pulsation is expansive, and entirely arrested by pressure on the femoral artery. The left foot is a little œdematous.

Treatment of this very marked case was commenced on October 27 by pressure for thirteen hours by a weight of nine pounds on the artery in the groin, alternating with a screw tourniquet applied in the centre of the thigh. The pulsation was entirely arrested for the first four hours, but occasional pulsation was allowed after this. A third of a grain of morphia was injected subcutaneously. The following day the pulsation was decidedly less in the tumour.

October 29.—The screw tourniquet and Reid's compressor were applied alternately for ten hours; morphia as before. The next day the aneurism was harder and the pulsation less.

31.—Pulsation was arrested entirely for four hours, pressure being continued without complete stoppage of the blood current for two hours longer.

November 1.—The parts now became painful, and the man being unable to bear any further pressure, I determined to try the same treatment with the patient under the influence of chloroform. Accordingly, that agent being administered, pulsation was completely arrested for four hours, and controlled for a further period of two hours without much effect. The knee measures 15¾ inches in circumference.

3.—Chloroform and pressure for nine and a half hours. The pressure was gradually decreased during the last four hours. At the end of the day slight pulsation existed, and this was completely stopped by flexing the limb. The next day the aneurism was harder and pulsation less.

5.—The limb was flexed sufficiently to stop pulsation during the day.

6.—Pressure for five hours under chloroform by Reid's compressor and a screw tourniquet alternately. The limb was afterwards flexed and ⅓-grain of morphia injected subcutaneously.

8.—Leg flexed and fixed. Pressure was thought unadvisable, as there was some superficial hardness over the course of the saphena vein in the middle of the thigh.

9.—A perceptible pulsation was to-day felt over the sternum in the arch of the aorta, indicative of aneurismal enlargement.

13.—Reid's compressor applied for three hours to diminish but not entirely to arrest pulsation in the aneurism.

From this date alternate flexion of the limb and pressure, with and without chloroform were tried, but pulsation still continued. The temperature in the axilla was regularly noted both before and after the administration of chloroform to ascertain if any influence were produced by the prolonged insensibility. It however kept fairly steady at 98°, the extremes being 97·6° and 99·2°.

December 1 to 11.—Flexion was thoroughly tried alone, and the sac became smaller and harder.

16.—Pressure with Reid's instrument was again resorted to, but now with this difference, that a flat piece of gutta-percha was placed next the skin to distribute the pressure, and the pad of the tourniquet was applied over it. This was continued pretty constantly until the 19th, when all pulsation in the aneurism ceased. Slight pulsation returned the following day, and finally ceased on the 23rd. The last application of pressure having been made on the 21st for a period of four hours.

January 3.—The man has been up since Christmas Day; able to walk well without pain, and the aneurism not much larger than a chestnut. The joint measures 14¼ inches, an inch and a half less than when admitted. The aortic dilatation remains the same.

Case II.

A gentleman, æt. 34, strong and hearty, fond of athletic exercise, gave me this history. Five months before I saw him, he felt a pain in the calf of the right leg. Two months afterwards he had pain and pulsation in the popliteal space. He walked, as usual, and paid but little attention to it till two months more had elapsed, when he consulted a surgeon, who, with the assistance of an instrument-maker, adopted, it appears to me, the somewhat unusual though by no means novel expedient, of applying pressure upon the aneurismal sac, with a laced stocking around the leg. These gave rise to the most excruciating pain, though the instrument was twice altered, under the idea of its improper fitting. There being no improvement, I saw him, and found an aneurism the size of a small orange in the right popliteal space. Pulsation was very strong, and not arrested by flexion of the leg to the utmost extent. Much swelling existed from the knee downwards, and excoriation of the skin over the tendo achillis and the tibialis anticus tendon, the result of the appliance of the elastic stocking. I need hardly say I put this gentleman to bed at once, and removed the stocking and apparatus.

In the course of a few days I commenced treatment by compression with weights in the groin and a tourniquet in the middle of the thigh. This was continued for three days, eight hours per diem, without any decided improvement; I therefore resorted to digital compression, commencing one Sunday at 10 A.M. Three of the patient's friends assisted me, and these alternately, for periods of ten minutes, compressed the vessel, while I sat with my hand upon the tumour to guard against the return of the slightest pulsation. Continuing this uninterruptedly for three and a half hours, I discovered at the end of this time, during a change of fingers from one assistant to another, that pulsation could no longer be felt in the aneurism. From that moment I may fairly consider that the disease was cured, but for fear of accident, pressure was continued in a somewhat less rigorous manner for another hour. Slight pressure was also continued up to

7 P.M. the same night, at the end of which time all treatment was discontinued, and the patient has since remained well.

The last case just narrated is, so far as I know, the shortest on record of cure of an aneurism by digital compression, and is one, it appears to me, cured by obtaining a complete stoppage of the current of blood. In the first case complete arrest was procured under chloroform for forty-seven hours, distributed over nine separate days—in three, for a period of four hours each time; in three for five hours; once for ten hours, and once for only half an hour. During the intervals flexion was tried or partial pressure, thereby allowing of a small current to flow through the vessel. Not much difference was noticed in the sac, and he was allowed to be up for a few days. Flexion was then employed for eleven consecutive days, and the swelling became smaller and harder, but distinct pulsation still existed. Finally, during five of the days between December 16 and 23, complete arrest was again tried by Reid's compressor without chloroform, but with a layer of gutta-percha under the pad. By this means the pressure was easily borne where before it could scarcely be tolerated. At the end of this period, comprising two months, the aneurism was perfectly well.

It has always appeared to me, contrary though I am aware it be to the view first promulgated by Dr. Bellingham and the Irish surgeons, that entire arrest of the current of blood should take place. The opponents of this plan, I presume, consider that if blood is prevented from entering the aneurismal sac, layers of fibrin cannot be formed; but surely if the stoppage is perfect above, the collateral channels will supply just so much as is necessary for the production of the deposit; whereas if a current of blood be allowed to pass along the vessel, the stratified layers formed are likely to be detached, and hence may be washed away.

From this I argue that obliteration of the vessel's channel is more likely to be attended by the cure of an aneurism than a merely partial arrest. The rapid cures which have taken place by digital compression appear to me also to warrant this conclusion.

A question which arises in the treatment of such cases is, when should pressure, whatever form be adopted, be discontinued, and deligation of the artery resorted to? In other words, what amount of perseverance ought the surgeon to insist upon? This will depend upon the amount of confidence he may have in this mode of treatment, and will vary much,

I suspect, according to the nationality of the practitioner. It appears to me that an Irishman would never think of tying a vessel, and that a Scotchman would hardly think of pressing one; the rule, of course, being liable to exceptions. In London, I think, the treatment is decided on according to the liking of each individual surgeon. For my own part, I may say that I have always persevered with pressure, and in illustration of its results, I may also say that I have never yet tied the femoral artery for the cure of a popliteal aneurism, though tempted to do so more than once by the slow progress evinced, as in the former of the two cases just related.

Possibly those adverse to pressure may say with some amount of justice, that had I ligatured the vessel when this man was first admitted, a cure would have resulted before two months had elapsed. Still, the strongest advocates for deligation must admit, that even with the beautiful antiseptic plan and catgut ligatures of Professor Lister, there is a greater amount of risk of gangrene of the foot and the attendant evils of incisions into the body than any patient submitted to pressure runs, more especially in such a case as No. 2, where in four days from the time I first commenced treatment, the patient was perfectly well.

I do not approve of leaving the adaptation of the pressure to the judgment of the patient, be he ever so shrewd, but prefer an earnest dresser to see that perfect occlusion is maintained. Perhaps, therefore, these cases can be more easily managed in a large hospital than elsewhere, unless one is assisted by such exceptionally valued private friends as was James C.

I may say that I have never yet seen gangrene of any part of the extremity in any of the cases in which I have employed pressure. The sores that result now and then from damage to the soft parts at the seat of pressure cannot be used as an argument against the treatment, as they may be always avoided by care and foresight. My conclusion then is, that what with chloroform and digital and other modes of compression, the cure of popliteal aneurism can be almost always accomplished without resorting to the knife. Let me repeat, I would wish to-night to ascertain from the members of this Society whether they generally adopt either the Irish or the Scotch method, and what, if any, are the indications which justify in their opinion the abandonment of pressure and the resort to ligature, without the most prolonged trial of the former.

XVIII.—*A Case of Popliteal Aneurism, cured by Mechanical Pressure (indirect).* By RICHARD BARWELL. *Read February* 9, 1872.

AT the end of April, 1870, I was consulted, together with Mr. Cadge, of Norwich, concerning an aneurism which that surgeon had detected in the popliteal space of a gentleman 38 years of age. The subject had had acute rheumatism about twenty years ago, but the heart and arteries appeared sound, and this disease was probably brought on by tossing a heavy child on his foot, with the leg crossed over the other knee. In the fortnight which elapsed between the detection of the aneurism and the commencement of treatment, the tumour increased, and became more painful both on walking and to the touch.

The necessary appliances being got together for the treatment by Carte's apparatus, and an excellent nurse procured, I went down on Saturday, May 13. On the 14th we proceeded to secure the apparatus. I found that the patient had, contrary to my advice, begged to be allowed to keep his usual bed and bedstead, and herein he had been indulged. After a short endurance it was found impossible to do good work. On the Monday, a fresh bedstead, on which he could lie really flat, being procured, I reckon the treatment from that day.

The patient, I may say, was most courageous, and displayed a fortitude in lying still which was of extreme importance; but former experience of their effects forbade either opium or chloroform. Chloral was twice given, the first time with good result, the second time with such ill effect, causing nightmare without real sleep, that he refused to repeat it. His own words will give a vivid idea of what an intelligent and plucky patient may think of the pressure treatment:

'The change of pressure from the groin to the thigh, and *vice versâ*, took place night and day, and I slept very little, but was so absorbed in the determination to aid treatment by lying still and bearing all the pain I could, that the sleeplessness did not worry me much or cause much distress. I think forty minutes was at first the average of time that I could bear the pressure unchanged; afterwards twenty-five or twenty minutes was as much as could be borne without alter-

ation. I don't think there was any special difference either in this or in the pain or throbbing at any particular part of the twenty-four hours. The skin was well taken care of, and stood the pressure wonderfully well. Day after day and night after night went on, and my surgeons could report no certain and reliable progress, and I became much disheartened.

'On Friday, from 11 to 4, I suffered most; the screws had constantly to be changed; my energy began to forsake me. I had not slept at all since the horrid nightmare of Wednesday evening; I felt I could not go on much longer; the artery seemed to throb more violently and faster, the screws to jump with each pulsation more and more. I really felt both dispirited and exhausted, when, oddly enough, suddenly the artery gave up the fight, ceased to throb, and I could bear the screws for three-quarters of an hour at least with ease, and fell into a quiet, though not a long sleep.

'The screws, however, were retained. On Saturday Mr. Barwell saw me again, and for that night relaxed the pressure considerably, and after a further consultation all the machinery was removed, exactly a week after treatment was first begun.'

So far the patient; here I resume my own parlance by stating that the first day of the treatment in the ill-adapted bed was barely to be considered. I reckon the real time from Monday morning at 11 to Friday afternoon, viz., about 122 hours. The patient remained a fortnight in bed; then was gradually got on crutches and allowed to walk. I now come to a point, mention of which I have seen nowhere, and yet which ought to be thoroughly well known to all who would thus treat an aneurism, viz., the pain, numbness, and loss of power which follows this treatment. One of the patients whose case Mr. Cooper Foster read the other night as a very rapid cure, is an acquaintance of mine, and he suffered very considerable pain six years after his cure when I last saw him, sometimes unprovoked, sometimes provoked by walking. The gentleman whose case I have just read also suffered severely on walking. He could during July, August, and the first half of September, barely go more than a hundred yards even slowly without stopping; at the rate of three miles an hour he could barely get more than twenty yards at a time. The patient says, 'I had to walk very slowly; any quick walking gave me severe pain at the back of the knee; my whole leg became numb, and I ceased to be able to move it. As months went on I was able to do more. In the winter, namely,

about six months after the treatment, I danced at a ball much better than I expected, and easier than I could walk. I also skated a good deal in that winter, but had frequently to rest, my leg getting numb. The other night (in January 1872) I danced at a large ball more than twenty dances in rapid succession; nevertheless, walking at three and a half or four miles an hour will soon bring me to a standstill for a few minutes.'

This patient also, I must say, had very marked wasting of the extensor muscles at the lower third of the thigh; very much limited to that spot where the plexus between the obturator and long saphenous nerves is placed, and here the skin is dull of sensation, and feels to the patient lifeless. The explanation of this pain appears to me twofold; firstly, by the decrease of circulation; secondly, by certain injury inflicted on the nerve by pressure.

Another point has more especial reference to the difference between the slow cure by pressure and the rapid cure. Very interesting discussions and controversies have taken place upon this subject, Dr. Bellingham and his followers insisting on not occluding the artery at once, giving time for the development of a collateral circulation; while the other school, Drs. Mapother, Heath and others, prefer immediate occlusion, and the cure as by a blow. One danger of ligature spoken of at last meeting, namely, gangrene, must be equally present in these cases. The fact, however, is that except in old or enfeebled persons gangrene is scarcely to be considered. Hence there seem to be certain grounds for choice between these two methods; one depending on age and strength, another on the temperament of the patient, a third on the locality of the aneurism. For instance, the Sunderland case (abdominal aorta) was cured in twenty minutes, while one of Vanzetti's (ophthalmic aneurism) could evidently not be treated by continuous pressure. All these grounds for choice must be noticed; neverthless, there can be no doubt that in suitable cases the rapid means is for many reasons the best.

A peculiar circumstance in the above case, but by no means an isolated one, is the great exacerbation of pain and throbbing which my patient experienced just before the cure of the aneurism. Similar conditions have arisen in other cases of pressure cure, as also in certain cases of spontaneous cure. I believe and hope soon to be in a position to show that this arises from the formation of soft clot within the aneurismal sac.

XIX.—*Two Cases of Cancer of the Female Breast treated with Condurango, a remedy reputed to be of great efficacy in Cancer, lately introduced from South America.* By J. W. Hulke. *Read February* 9, 1872.

A GIFT of powdered Condurango bark, for which we were indebted to the courtesy of an American surgeon who visited the Middlesex Hospital last November, enabled Mr. De Morgan and myself to give this reputed remedy a second trial. In a former one conducted in the preceding August and September ℥v of a decoction of thin shavings of the wood and bark, of the colour of strong tea, were given morning and evening, but in this trial we used a decoction made by boiling ℥i of the powdered bark in ℥xx of water until reduced to ℥xii, and the dose of this was ℥i, taken three times a day shortly before a meal. This our donor told us was a stronger preparation, the bark being more active than the wood.

I had selected for the first trial typical examples of epithelioma because the cases adduced by Dr. Casares, surgeon to the hospital at Quito, in proof of the remedial powers of Condurango more closely resembled this than other forms of cancer. I now chose two cases of hard cancer of the female breast in the ulcerated stage which, being accessible to direct inspection as well as to touch, were more suitable for my purpose than uterine cancer. These form the basis of my communication this evening. My colleague, Mr. Campbell De Morgan, will also bring under your notice other cases treated by him during the same time. I may mention that throughout the trial we often together saw each other's patients, and that they were also seen by several medici interested in the outcome of the trial, who attended our visits, and more particularly by the American surgeon who gave us the bark. I should add that when this was exhausted we prolonged the trial with two pounds of powdered Condurango bark bought of John Bell & Co.

Before narrating the cases it will be convenient to lay before you shortly what is certainly known of the Condurango, and what are its reputed physiological and therapeutic properties.

It is indigenous in the province of Loja, in Ecuador, in 30° 56′ 30″ S. lat., where it has long been used by empirics. The dry stems, as we receive them, apparently those of an exogenous climber, from 1 to 1½ inches in diameter, consist of a light-coloured wood enclosing a small central pith, from which numerous medullary rays radiate towards the exterior. In cross-sections the vascular ducts are so large as to be readily seen with the unassisted eye. In stems of the average thickness of one's thumb, I do not find concentric rings of wood, in which respect they resemble the growth of one year, but the aspect of the bark's exterior does not harmonise with this view. The bark is rather thick. Its outer surface, of a light brownish-and-grey colour, is longitudinally wrinkled, and beset with minute roughnesses, and with patches of flat, greyish and pale-green lichens. The bark and wood have a smell which faintly reminds me of cascarilla. When chewed they have a slightly bitter, rather mawkish taste.

Since writing this my attention has been called to two communications on the natural history of the plant in 'Nature' of October 25, 1871, and January 25, 1872.

A decoction of shavings of the stems in doses of ℥v twice a day (the form and dose customarily given in Loja) is said to produce diaphoresis in some persons, diuresis in others, while in others no effects are apparent.

Dr. Casares mentions a report that Condurango kills dogs in the same manner as strychnine, but he is careful to state that he had not himself seen this, and he adds the very remarkable statement that its physiological effects are nil, but its therapeutic ones manifest themselves soon in the 'reconstitution' of the patient, and in a marked improvement in the condition of the tumour.

From a perusal of Dr. Casares' cases, and of others published by Messrs. Bliss and Keene—from whom I lately received a very liberal present of the fluid extract prepared by them, and also of the bark—it appears that this local improvement manifests itself in softening of the scirrhous induration, in the diminution and final disappearance of the tumour, in the ichorous fœtid discharge from the ulcer becoming more and more like laudable pus, and in the decrease and final cicatrisation of the ulcers; while the evidences of the 'reconstitution' are improvement of the digestive powers, increased strength, and, in short, restoration to health,

CASE I.—*Ulcerated Hard-Cancer of the right breast, treated with decoction of the bark of Condurango from December* 12 *to January* 8 *inclusive; and from January* 11 *to the present time with the fluid extract. Progress of the cancer unchecked.*

A married woman, æt. 41, was admitted December 6, 1871, into Whitbread ward with an ulcerated hard-cancer of the right breast.

State on admission into the hospital.—The whole breast was much swollen and brawny. In its axillary border was a deeply-excavated ulcer of the size of a walnut. The edges of this were indurated, sinuous, and undermined. A thin, very fœtid ichor oozed from it. An inconspicuous dimple marked where the nipple had existed. Beyond the border of the mamma the brawny hardness and the swelling extended inwards nearly to the sternum, outwards to the armpit, and beyond this to the shoulder and the upper arm, the girth of which at the insertion of the deltoid muscle was 13½ inches, that of the left arm at the same level being 9 inches. Below this the brawny swellings passed gradually into an ordinary doughy œdema of the forearm and hand. Upwards the induration and swelling extended through the infra-clavicular region to the root of the neck, where there was a group of enlarged lymphatic glands. Over the whole of this large brawny area the skin was tight, fixed, and shining, and blue from the presence of many dilated cutaneous veinlets. Nearly co-extensively with this brawniness the surface was also anæsthetic. In the mammary and clavicular regions, upon the shoulder, the arm and forearm, the contact of a blunt point (that of a lead pencil) both when it was firmly pressed on one spot, and also when it was drawn along the surface so as to multiply the points of contact, was not perceived. The hand and the fingers retained a slight amount of tactile sensitiveness. (They lost this at a later period.)

The mechanical hindrance to movement offered by the brawny casing of the shoulder and arm, the presumed cancerous infiltation of the muscles about the shoulder, and the œdema of the forearm, made any estimate respecting the condition of the motor nerves hardly better than a guess, but the balance was in favour of considerable impairment of their conductivity.

Her face was pale, but its complexion was clear, and not

sallow nor jaundiced. Her appetite was very capricious. She was much troubled by nausea and occasional retching, which she thought were caused by the bad smell from the ulcer, but her chief distress was pain in the arm and hand.

History.—Four years ago, while pregnant, she first noticed in the left breast a small knot of the size of a filbert, movable under the skin and not painful. At the time of her confinement, eight months later, it had reached the size of a walnut, and she began to feel darting pains in it, and in the neck. Ignorant of the nature of the disease, she suckled her infant with this breast until its milk failed. From the time of her confinement the knot in the breast grew more quickly. At the end of the third year it broke, and at that time she became an out-patient at the Norwich Infirmary. Failing to obtain the cure she sought, she then placed herself in the hands of a quack, who applied a plaister, and afterwards tore out, as she thought, the whole cancerous lump. But she soon found that she had not been cured, and her arm beginning to swell, she sought to be taken into the Middlesex Hospital. None of her relatives, within her knowledge, had had cancer.

The whole arm from the fingers to the shoulder was bandaged with a thin flannel roller, and hypodermic injections of morphia were given to relieve the pain in the hand.

On December 12, a week later, by which time she had become used to hospital life, she began to take the decoction of Condurango bark in doses of ℥i three times a day. The first dose was soon rejected, but not the subsequent ones. At 9 A.M. pulse 80; temp. 98°·3.

13.—Pulse 80; temp. 98°·5.

14.—Arm rather less swollen and hand less painful. Pulse 80; temp. 98°·3.

15.—More pain. Rest last night broken. Pulse 80; temp. 98°·3.

18.—Arm more swollen. Vomited last night, and again this morning, but before and not after her dose of Condurango.

19.—Vomited three times last night.

21.—Arm still more swollen and pain greater. She has plainly lost strength during the past week. The brawny swelling of the breast has increased. The discharge continues thin and ichorous. The ulcer is larger.

23.—Sickness less troublesome. Œdema of arm and pain increased.

26.—Sickness, which for two days had ceased, has now returned. Slept little last night owing to pain in hand.

28.—The tumour of the breast is decidedly larger, and the brawny infiltration has extended, the ulcer is also appreciably larger and deeper. The hand no longer feels the firm pressure of a single blunt point, but when a pencil is firmly drawn along the surface she is just conscious of it.

January 1.—No sickness, but more pain, both in the hand and breast.

The ulcer was now dressed with a stramonium ointment.

3.—Vomited again last night. She continues to attribute the sickness to the fœtor from the ulcer, which deodorising lotions imperfectly destroy. The sickness never follows the dose of Condurango.

8.—The supply being out, the administration of the Condurango ceased.

Her condition was decidedly worse than when she began to take it. The cancerous infiltration has increased and extended on all sides. The ulcer is larger and deeper, and its edges are becoming everted. She is also manifestly much weaker.

11.—The hand and arm were rather more swollen. The ulcer had become a large sloughy hollow capable of holding a good-sized orange, its edges were turned and everted, and the base was sloughy. It was much more painful, and the fœtor was greater. The skin for some distance around the excavation was beset with small superficially ulcerated cutaneous tubercles.

The large hollow was lightly packed with cotton-wool dipped in a solution of permanganate of potash, and the edges and skin, as far as the ulcerated knots reached, were dressed with stramonium ointment.

She now began to take ʒii of the fluid extract of Condurango prepared by Messrs. Bliss, Keene & Co., whose London agent courteously placed two one-pint bottles at my disposal for trial. As she complained of thirst, I ordered her also small doses of phosphoric acid.

12.—Thirst less troublesome. Less pain in the breast.

15.—Since the ulcer was dressed with cotton-wool dipped in a Condy's-fluid lotion the fœtor has been less. The sloughing has now ceased, and the sloughs are beginning to fall. She says the breast is less painful with the present dressing. There is not any change for the better in the surrounding brawny cancerous infiltration.

18.—The ulcer is cleaner. It continues to enlarge.

22.—Yesterday and through the night was very sick. The surface of the ulcer is much cleaner. The tumid everted edges have been destroyed and are now undermined. The discharge is less offensive. She has certainly lost flesh and strength since she began the second trial.

Date	9 A.M.		2 P.M.		9 P.M.		General Remarks	Date	9 A.M.		2 P.M.		9 P.M.		General Remarks
	P	T	P	T	P	T			P	T	P	T	P	T	
Dec. 12	80	98°·3					Condurango begun.	Jan. 11	88	98°·6			107	102°·	Began to take of Fluid Extract of Condurango ʒii 4 in die.
„ 13	80	98·5						„ 12			88	100°	100	101·9	
„ 14	80	98·3			96	99°·2		„ 13	99	100·2			112	101·5	
„ 15			80	94°.3				„ 14	88	99·2			100	102·5	
„ 16	80	98·3			88	99·5		„ 15	92	98·5					
„ 17	82	99·			84	99·		„ 16	96	98·3			120	100·5	
„ 18	76	98·3			78	98·6		„ 17	96	98·3			92	101·	
„ 19	88	99·2			90	99·		„ 18	100	98·3			96	97·5	
„ 20	84	98·3			88	98·		„ 19	92	98·3			118	100·7	
„ 21					94	99·2		„ 20	88	98·3			108	100·	
„ 22	88	98·3			88	100·		„ 21	93	99·			104	98·4	
„ 23	90	98·1			97	100·		„ 22	100	98·3			106	99·	
„ 24					92	98·4		„ 23	100	99·			108	99·6	
„ 25					89	101·2		„ 24					100	100·	
„ 26	84	98·4			92	98·		„ 25	84	98·3			109	99·3	
„ 27	88	98·1			94	99·		„ 26	100	99·			100	99·5	
„ 28	80	98·			92	99·6		„ 27	100	99·			100	99·6	
„ 29	80	98·2			85	99·		„ 28	90	99·			89	99·9	
„ 30	82	98·5			97	100·		„ 29	93	99·			100	99·3	
„ 31	84	98·9			86	99·3		„ 30	92	99·			88	99·6	
Jan. 1	84	98·5			100	99·		„ 31	84	98·5			96	100·4	
„ 2	80	98·5			88	100·		Feb. 1	92	98·5			88	99·8	
„ 3	80	98·4			106	101·		„ 2	88	98·3			92	100·	
„ 4	84	98·4			100	100·8		„ 3	92	99·2			96	99·8	
„ 5	104	101·8			108	101·2		„ 4	84	98·			100	100·8	
„ 6	92	98·1			90	99·5		„ 5	88	98·5			100	99·2	Condurango ceased. In very great pain.
„ 7	90	98·8			96	99·9		„ 6	88	98·3			96	98·6	
„ 8	88	98·6			88			„ 7	88	98·5			92	100·8	
„ 9								„ 8	88	99·					
„ 10	80	98·3			122	100·2									

28.—The ulceration continues to progress.

February 5.—Very sick. Condurango discontinued.

8.—Since the first of the month she has had very distressing sickness. The ulcer is larger, and the secondary knots in the skin increase. Her strength has greatly declined.

CASE II.—*Ulcerated Hard-Cancer of the left breast, treated with ʒi of decoction of the bark of Condurango taken twice daily from November 27 to January 12. Progress of cancer unchecked.*

S. M., æt. 37, was admitted into Whitehead ward November 16, 1871.

Her left breast was swollen, hard and tuberous. A

puckered depression marked the position of the absent nipple. At the sternal side of this was a prominent knob, of the size of a walnut, with a fungating summit, and at the outer side in the direction of the armpit stretched a long, deep, narrow ulcer, the upper edge of which was thin, sharp, and undermined, while the lower was an inverted broad cylindered fungating roll. The skin was adherent to the breast and to the underlying tissues for some distance beyond it; and throughout this area it was beset with many small hard knots varying in size from that of a dust-shot to a pea. On the exterior fold of the armpit these were very numerous. Here they were clustered closely in the form of coarsely-granulated plaques. At the sternal side they occurred at wider intervals—the innermost ones nearly reached the middle line. The lymphatic glands in the armpit and on the root of the neck were enlarged and hard.

Notwithstanding this pitiable condition, her sufferings were less than might have been expected. She said the pain in the breast was not very great. Her appetite was good. She slept well. Her strength was not very greatly reduced. She was not very thin. Her complexion was pale, but not sallow.

History.—She told us that two years before, after her confinement, when she put her child to the breast she felt pain in the nipple (where she had not been previously aware of anything wrong) and found a small pimple on it which festered and scabbed over. The scab fell off and formed again several times, always disclosing a larger sore, and in about three months the nipple was quite destroyed. The sore then frequently bled, and about this time knots formed around it, which soon broke, grew larger, fungated, and yielded copiously an offensively-smelling ichor. Meanwhile she had again become pregnant. Eight weeks before she was taken into the Middlesex Hospital she was confined at full term, and from this time she thought the cancer had made much greater progress than before. She had borne eight children, and she had suckled the earlier ones as much with this breast as with the other. She had never had a blow on it, or an abscess, or any other affection of it. No relative had within her knowledge had cancer.

The sore was at first dressed with stramonium ointment, but after a few days, becoming superficially sloughy and the fœtor increasing, the surface was dusted frequently with carbolised starch in the proportion of 1·100.

November 27.—9 P.M.—Her pulse was 94, and the temperature of the right armpit was 99° F.

28.—She began in the afternoon to take ℥i of dec. conduranginis with ʒss tinct. zingib. three times daily shortly before meals. 9 A.M.—Pulse 96; temp. 98°. 9 P.M.—Pulse 96; temp. 98·7.

29.—9 A.M.—Pulse 100; temp. 101·3. 9 P.M.—Pulse 102; temp. 101.

This rise of temperature was attended with slight malaise, nausea, and loss of appetite. There was not any appreciable change in the condition of the ulcer or tumour, which might have explained it. As the bowels were bound an aperient was ordered.

30.—9 A.M. Pulse 88; temp. 99·9. 9 P.M.—Pulse 86; temp. 98·6.

December 1.—She said she felt stronger, and that she had less nausea. 9 A.M.—Pulse 88; temp. 98·2. 9 P.M.—Pulse 100; temp. 99.

7.—She told us that since she had used the carbolised starch the fœtor from the sore had been much less. With this she had had less nausea. She had eaten more, and she felt stronger. The progress of the cancer continued unmodified and unchecked.

18.—The fungating ulcer and the principal knob at the sternal side of the destroyed nipple were plainly larger. The brawny enlargement of the breast had increased, and it had plainly made much progress in the surrounding tissues, particularly towards the collar-bone and the armpit. The secondary cutaneous knots have become more numerous, and the largest have begun to ulcerate.

26.—Since the last note the ulceration has continued, and the progress of the cancer has, if anything, been rather greater than previously.

July 3.—The large knob at the sternal side of the nipple has since the last note been nearly destroyed by ulceration.

12.—This and the long ulcer between the destroyed nipple and the armpit have now run together, forming a sore about six inches long by two inches wide with sinuous, everted, tumid edges. The discharge from this large surface is very copious, thin, ichorous, and highly offensive. Her appetite is not so good, and her strength is plainly much less than when she began the trial.

Remarks.—In neither of these cases were any of the remedial effects ascribed to Condurango perceptible; the scirrhous

swelling did not soften, lessen and disappear, but it even increased and extended. The ulcers did not clean and cicatrize, but they fungated, sloughed, and enlarged with varying quickness, as they are wont to do in such cases. Secondary cutaneous tubercles appeared, multiplied, blended in plaques, and ulcerated; and the lymphatic glands became infected and enlarged. Instead of the '*reconstitution*' of the patient, the appetite became capricious and grew less, and there was increasing loss of flesh and strength. In short, the progress of the disease in these cases, as in all my earlier ones, was neither arrested nor even favourably modified. As a remedy for cancer, Condurango is, as far as my present experience goes, valueless.

Date	9 A.M.		9 P.M.		General Remarks	Date	9 A.M.		9 P.M.		General Remarks.
	P.	T.	P.	T.			P.	T.	P.	T.	
Nov. 27			94	99°		Jan. 3	88	98°·4	100	98°·5	
„ 28	96	98°·	96	98·7	Condurango begun	„ 4	96	99·7	100	98·4	
„ 29	100	101·3	102	101·		„ 5	92	98·	96	99·	
„ 30	88	99·9	86	98·6		„ 6	104	99·6	100	98·4	
Dec. 1	88	98·2	100	99·		„ 7	100	99·	98	99·	
„ 2	80	98·	92	98·		„ 8	89	99·2	88	98·7	
„ 3	100	98·8	92	98·6		„ 9	100	98·	92	98·3	
„ 4	84	98·	95	99·8		„ 10	90	99·3	93	98·3	
„ 5	84	98·6	88	98·6		„ 11	92	100·	99	98·2	
„ 6	82	98·5	94	99·2		„ 12	84	98·7	79	98·3	
„ 7	90	99·7	86	98·4		„ 13	88	98·	92	98·4	
„ 8	80	98·7	88	98·6		„ 14	81	98·2	88	98·4	Condurango discontinued
„ 9	88	98·9	90	99·		„ 15	88	98·4	86	98·4	
„ 10	98	98·6	88	98·2		„ 16			90	98·	
„ 11	88	98·2	84	98·3		„ 17	86	98·6	100	99·	
„ 12	84	98·	88	98·		„ 18	88	98·5	112	100·	
„ 13	80	98·4	82	98·4		„ 19	100	99·3	82	98·4	
„ 14	80	98·2	80	98·		„ 20	96	98·2	108	100·3	
„ 15	80	98·	87	98·2		„ 21	87	98·5	104	98·4	
„ 16	80	98·4	88	98·		„ 22			104	98·6	
„ 17	88	98·2	86	98·		„ 23			108	98·6	
„ 18	80	98·6	83	98·		„ 24			100	98·5	
„ 19	80	98·3	81	98·2		„ 25			100	98·5	
„ 20	84	98·	80	98·4		„ 26			97	98·4	
„ 21	80	98·	87	98·4		„ 27			100	100·2	
„ 22	88	98·	84	98·2		„ 28	99	99·3	100	99·6	
„ 23	102	98·7	85	98·3		„ 29			106	100·	
„ 24			96	98·4		„ 30			98	102·	
„ 25			100			„ 31	96	99·	116	102·	
„ 26	88	98·4	92	98·2		Feb. 1	104	100·4	112	99·	
„ 27	88	98·3	85	98·4		„ 2	108	100·8	104	101·2	
„ 28	88	98·2	88	98·		„ 3	92	98·6	100	99·5	
„ 29	84	98·5	84	98·7		„ 4	88	98·4	100	98·2	
„ 30			80	98·4		„ 5	88	99·2	96	99·4	
„ 31	82	98·4	90	98·2		„ 6	80	98·6	92	98·5	
Jan. 1	88	99·	92	98·7		„ 7	80	98·	92	98·6	
„ 2	88	98·6	88	984·		„ 8	84	99·			

As regards the diuretic and diaphoretic powers attributed to it, I did not find that the decoctions in the doses and under the circumstances detailed above, increased the quantity of urine or caused sweating.

It may be worth notice that a decided rise of temperature and quickening of the pulse occurred in the second of the two cases on the second day after the patient began to take the decoction. Slighter rises of temperature had been recorded in some of the cases in my former trial in August. The absence of any rise of temperature from the first case read to-night, and also from Mr. De Morgan's cases, as he informs me, together with the known frequency of slight and passing pyrexia in cancer-patients with open sores, makes me hesitate to regard this as an effect of Condurango.

Case III.—*Rodent cancer of the face.*

Desirous of fully testing the therapeutic value (in cancer) of the fluid extracts so liberally placed at my dispossal by Messrs. Bliss and Keene, I gave it in doses of ʒii four times a day to a woman, C. H., æt. 61, who had been an inmate of the cancer ward since August 1870, with a rodent cancer of the face of twelve years' duration.

Date	9 A.M.		2 P.M.		9 P.M.		Remarks
	P.	T.	P.	T.	P.	T.	
Jan. 11			92	98°·2			Fluid Extract of Condurango ʒii 4 ter die.
„ 12	84	98°·3	—	—			
„ 13	80	98·4	—	—	100	98°·	
„ 14	81	98·3	—	—	95	98·	
„ 15	96	98·	—	—	112	98·2	
„ 16	80	98·2	—	—	88	98·	
„ 17	76	98·	—	—	80	98·	
„ 18	96	98·	—	—	92	98·	
„ 19	84	98·	—	—	81	98·4	
„ 20	92	98·	—	—	84	98·2	
„ 21	82	98·2	—	—	92	98·	
„ 22	80	98·	—	—	80	98·2	
„ 23	80	98·4	—	—	100	98·6	
„ 24	80	98·4	—	—	100	98·5	
„ 25	86	98·4	—	—	—	—	
„ 26	—	—	—	—	—	—	
„ 27	—	—	—	—	—	—	
„ 28	—	—	—	—	—	—	
„ 29	—	—	—	—	—	—	Ceased taking the Condurango.

On January 11, 1872, the day when she began to take it, the inner half of the right eyebrow and upper eyelid, the whole nose, and the left half of the upper lip were destroyed by a large ulcer, the edges of which were indurated for a

space of about three inches, sinuous and everted. The base was coarsely triterculated. It yielded a thin and not very fœtid ichor. There was no evidence of infection of the lymphatic glands, and she did not exhibit any appearance of cachexia. Her chief distress was pain in the frontal sinus with headaches.

After fifteen days' trial, the condition of the ulcer remained quite unaltered, and the patient growing tired of taking medicine, begged to leave it off.

XX.—*Cases of Cancer treated by Condurango.* By Campbell De Morgan. *Read February* 9, 1872.

THESE cases serve as an appendix to the paper by Mr. Hulke. I cannot say that I was ever sanguine as to the benefit to be derived from the use of the Condurango. Indeed, I do not believe that a cancer will ever be removed by internal medicines. The trial was, however, carefully made, and the condition of the patients closely watched during the time of administration of the medicine. During the greater part of this time the decoction was made from some of the powder brought direct from New York, and afterwards from the bruised bark obtained from Bell's. The results in all the cases were as completely unsatisfactory as in those brought forward by Mr. Hulke.

Case I.—*Scirrhus of left breast.*

Emily S., æt. 62, a widow. She had enjoyed good health up to five months before her admission to the Middlesex Hospital on November 24, 1871, when she noticed a lump, about the size of a walnut, in the left breast. She had had occasional pain in the breast for a year or two before. There was no history of cancer in the family. When admitted there was a tumour, irregular in form, extending from below the clavicle to a little below the nipple, which was retracted. The skin is adherent to the tumour at the lower part about the nipple, but was here moveable to a slight degree on the parts below. At the sub-clavicular part it is firmly adherent

to the subjacent parts, but the skin is moveable over it. There are some enlarged glands in the axilla, and the arm is œdematous. The measurement of the tumour is six inches from above downwards, and four inches transversely. She has pain in the arm and down the back; her appetite is pretty good, and she does not suffer from indigestion. She has been losing flesh. The pulse ranges from 65 to 76, and the temperature is generally about 98·5.

She began to take the decoction of Condurango on the 30th of November.

There was no change whatever in her condition, other than one sees in cancer patients generally. One day she was feeling a little better, the next, perhaps, a little worse. Taking her condition at the end of ten days, she was certainly worse; the average rate of the pulse was from 68 to 80; the œdema of the arm was greater, so that it measured three-quarters of an inch more in circumference at the largest part, and she certainly had not less, if anything, she had more pain. She complained of feeling weaker, and quinine was given after meals, as recommended in the report on the medicine. On one day, December 15, she certainly seemed better, her appetite increased, and she was much freer from pain; but there was no other change, and this feeling of improvement only lasted for some 18 hours. After this, she progressively lost ground. The pain was more constant and more severe, and the œdema of the arm increased greatly. She was evidently losing flesh, and the general rate of the pulse was increased, and averaging from 68 to 80, the temperature ranging from 98° to 99°.

On December 26 she appeared somewhat drowsy, and was slightly feverish and thirsty. She now kept her bed entirely. From this time she rapidly got weaker, and lost flesh. She did not complain so much of pain as of weakness. At night she lay in a semi-conscious state. The tumour had increased by about half an inch in each direction. The pulse became weaker, without being much accelerated; it never rose beyond 90. For two days before her death, which took place on January 4, she was in a state of stupor, with occasional convulsive twitchings.

There was here then no indication of any influence exercised by the drug over the disease. The death of the patient took place sooner than I had expected when she first came to the hospital. I entirely failed to detect any alteration in the actions of the skin or kidney.

Case II.

Bridget P., æt. 44, was admitted on July 18, 1872. Her complexion was then healthy, and she was in good general condition. In the left breast was a large, hard tumour, adherent to the skin, which was thin and red: a hard cord could be felt running towards the axilla, where was a cluster of enlarged glands. The nipple was retracted. The glands above the clavicle and the surrounding tissues were large and hard. The disease had existed two years. She had been previously healthy, and came of a healthy family.

Soon after her admission a swelling appeared over the upper part of the sternum, which increased until it extended across the clavicle to the middle of the neck on the left side. It was elastic and soft. Towards the latter end of September inflammation set in about the original tumour, which terminated in the sloughing of the entire mass. The slough was thrown off, and the part cicatrized, but numerous nodules could be felt in the skin around the cicatrix. The sternal swelling increased, giving rise to great pain, and œdema of the arm set in.

On December 7 she began to take the condurango. At this time she had lost flesh, but not to any great extent; the pulse was from 114 to 120, and weak; the tongue was natural, and she took food with relish. She suffered much from the swelling about the neck.

Half an ounce of the decoction was given three times a day before, and a grain of quinine after, meals.

From the 7th to the 22nd there was no change, except for the worse. She complained of more pain; the tumour in the sternal region and neck increased, and she lost appetite. The pulse became certainly weaker, though not much quickened; the temperature ranged from 99° to 100°.

On the 18th ulceration began in the prominent part of the sternal tumour, and on the 22nd she had some slight hæmorrhage. She had severe pain in the arm as well as the tumour, and complained of excessive weakness. Her appetite was gone; she was losing flesh rapidly, and the pulse at times was scarcely perceptible.

She gradually got weaker, the pain somewhat subsiding. There was occasional slight hæmorrhage. She died on January 8, having been unable for some days before her death to take the medicine, which had, however, been taken regularly for over three weeks.

Here, again, there was not at any time the slightest trace of benefit to the patient from the use of the medicine, nor were the changes in the secretions, mentioned in the statement as to its effects, at all noticeable.

Case III.

Eliza P., æt. 57, was admitted on October 11, 1871. This was a case of uterine and vaginal cancer of two years' duration. The vagina was so contracted that it was not easy to make a full examination of the parts. She had had from time to time a considerable amount of hæmorrhage, and suffered much pain. The report made at the time she commenced taking the Condurango (on December 15) was that she had a cachectic look, and was losing flesh. She had great pain in the back and lower part of abdomen, which was relieved by opiate injections. She was wakeful; had perspirations at times, and was thirsty; the pulse 116, weak and compressible. There had been progressive loss of strength and appetite; occasionally she had had diarrhœa, which was now stopped. The discharge was profuse, but there had been no hæmorrhage for some time.

The Condurango was given in the manner recommended, as well as quinine. Her history to the time of her death on January 18, 1872, more than a month after she began to take the medicine, was the usual one in such cases. On some days she felt better, and took some food; on others she suffered as much as ever. But there was always a tendency to a downward progress. The pulse never became slower, and it became weaker. The diarrhœa came on as before; her thirst remained as great; the state of the skin remained the same. I cannot say that I noticed the slightest difference in her condition from that which one generally sees in advanced cases of uterine cancer.

The cases thus selected were all advanced ones, and it may be reasonably said that they were too far advanced to be cured by any remedy; in all of them secondary internal growths were found abundantly. But the published accounts of the influence of Condurango led us to believe that at least some sustaining or restorative action would have been noticeable in the course of ten days. Now I confess that, from my experience, I should have given a longer duration of life to all these cases than actually was present. I do not mean to imply that the medicine exercised any injurious effect, but simply that there was no trace of

amendment. It would have given me the greatest satisfaction had I seen one single circumstance which would have led me to think that any specific effect was being exerted; and glad should I be, if any such evidence can be offered, to renew the trial in other cases.

We know that now and then a cancer will become quiescent, or will even retrograde, so that solitary cases will not count for much. If it could be shown that in one case in a dozen a real unmistakeable improvement was due to general treatment, no one would hesitate to say that an invaluable agent had been placed in our hands. Such evidence is unhappily still wanting.

XXI.—*Two Cases of Recto-vesical Fistula treated by Colotomy.* By THOMAS BRYANT. *Read February* 23, 1872.

MR. T., æt. 64, a thin but healthy gentleman, residing at Islington, consulted me on August 10, 1869, on account of some bladder trouble. He had been under the care of Sir W. Gull, who sent him to me for some surgical inquiry when he discovered that the urine contained fæces.

On taking the history of the case, it seemed that the first symptoms of his present illness appeared three months previously, when he had what was called an attack of 'dysentery,' diarrhœa, tenesmus, and the passage of blood and mucous with the stools, being the chief symptoms. Under treatment these got better in six weeks, when he first noticed that his urine became fœtid, and wind passed with it, solid fæces soon appearing in the chamber vessel mixed with his urine. At this time he consulted Sir W. Gull.

When I saw him his urine was highly charged with fæculent matter, which from its solid nature clearly came from the large intestine. He had pain in micturition, and at times difficulty from the obstruction caused by the fæces in the urethra. The bladder on examination appeared comparatively healthy. The rectum was carefully explored, but no stricture or other evidence of disease could be made

out. Behind the prostate, on making pressure much pain was caused, but the disease was clearly above the point the finger could reach. On making deep pressure into the pelvis from the abdomen no tumour could be made out. The bowels were still loose, the motions being never well formed, but before the present illness there had been nothing wrong with them.

There was no evidence of the presence of cancer in this patient, nor even of stricture of the rectum; but there was abundant evidence to prove that a free communication existed between the large intestine and the bladder, and it seemed probable that this was at its base.

Colotomy was consequently suggested, and on August 16 it was performed in the left loin. Mr. Rendle gave chloroform, and Dr. Watkins and Mr. Jolliffe kindly assisted. The operation was completed without difficulty with the oblique incision; the bowel, which was not distended, was opened and stitched to the wound, and fæces flowed freely from the artificial anus within a few hours. The rectum was washed out with water. The next day the urine was clear, and passed readily. There was no sickness and no pain.

August 19.—On the third day the sutures were removed, the parts having united; fæces passed without any trouble through the wound; all urinary symptoms had disappeared.

21.—Wound looks very healthy. The patient takes food freely, and with appetite; expresses himself as being greatly relieved.

In three weeks this patient was up. The bowels act regularly through the artificial anus. The urine passes naturally; when the bladder is fully distended some urine find its way into the rectum. Once or twice, when the bowels have been relaxed some little motion has passed by the artificial anus into the rectum, and thus into the bladder.

I advised him to wash out the rectum every three or four days with an injection to prevent this.

October 5.—Mr. T. called on me. He had gained flesh and felt well. He still once a day passes a little urine per anum that finds its way into the rectum. The urine otherwise flows freely, and is quite natural. No fæces pass now into the rectum, all come through the anus in the left loin.

November 11.—This gentleman can walk six miles without fatigue. He experiences very little inconvenience from the artificial anus, the bowels acting regularly. He has no

pain on micturition. The passage of some little urine into the rectum occurs less frequently than it did.

April 15.—Five months after the last visit he reported himself to me as being very well. All his symptoms were the same with the exception that for a few days he had observed that urine passed from the wound in the loin when he was emptying the bladder.

March 14, 1870.—A year later he was still well. Urine still occasionally passes per anum and through the artificial anus. Urine quite natural and clear. It flows without any pain or difficulty. To the finger the bowel appears to be healthy. At the present time no signs of disease can be made out beyond the evidence of the recto-vesical fistula, which gives no trouble.

Case II.—*Recto-vesical fistula. Colotomy.*

Robert R., æt. 49, a retired dock-yard clerk, consulted me in June 1870, on the advice of my colleague, Dr. Habershon.

He was a thin man, and had never had syphilis nor other illness till January, 1867, when he noticed that wind passed through the penis after micturition. It passed without pain. No other symptoms of disease existed. A month later pain was felt at the end of the penis, when micturating, which was relieved when the bladder had emptied itself. At this time his bowels were quite natural.

In March, after the expiration of another month, fæces appeared in the urine when the bowels became relaxed, but not otherwise. In June 1869, urine passed into the bowel and was expelled through the rectum.

He was in Dublin when these symptoms appeared, and under the care of an excellent physician, Dr. Cruise.

He came to London for advice, as he was gradually becoming thinner and weaker, resigning his official position in Ireland. He consulted Dr. Habershon, who sent him to me, thinking surgery might be of use.

When I saw him abundant evidence existed of the presence of solid fæces in the urine. The urine was dreadfully fœtid; the bladder irritable; micturition painful. Ulceration could also be detected with the finger in the rectum at the base of the bladder. It had not, however, a cancerous feel.

I advised colotomy as the only means through which relief could be obtained, and took him into Guy's to do it.

On July 5, 1870, the operation was performed in the left

loin, by means of the oblique incision. Some little difficulty was experienced in hooking up the bowel, as it was quite empty. When caught it was opened and stitched to the wound. Everything progressed well after the operation. On the 9th, or fourth day, the stitches were removed; fæces continue to pass readily through the wound; urine flows through the urethra and rectum; it is quite free from fæces.

On the 19th urine passed through the artificial anus with the fæces. No fæces nor urine have passed into the bladder since the operation.

July 26.—Doing so well that he got up do-day. Takes food healthily.

August 15.—Is up and about. Says he feels very well. He is in no pain; passes his urine with ease; it is quite clear; a little passes into the rectum at times, and through the artificial anus; bowels act regularly; the ulceration in the rectum is clearly healing.

He was directed to wash the bowel out by an enema twice a week.

He left the hospital comparatively well on August 24.

On January 10, 1871, I heard from him in Dublin. He said: 'I am much better than I ever expected to be. I am getting quite fat. Although the operation has put me to some inconvenience, yet my freedom from pain far more than compensates me for it. The only thing that troubles me now is the water passing from the bladder into the lower bowel.'

In July 1871, one year after the operation, he writes: 'I am almost entirely free from pain. No wind or fæces have passed into the bladder since the operation. My bowels act regularly. Urine still flows from the urethra as well as through the rectum and wound. I feel quite well otherwise.'

In May 1872, the report was: 'I feel almost as strong as ever I was. I can eat, drink, and sleep well. I am altogether free from pain. Some water still passes from the bladder into the bowel.'

Remarks.—I give the brief details of these two cases without much comment. In both there seems good reason to believe that the ulcerative action that caused the fistula was of a simple nature, and that it commenced in the rectum. In one it was rapid in its progress, in the second slow.

In both the relief that followed the operation of colotomy was very striking, for it was complete; and so far as evidence goes, there is reason to believe that the ulcerative action in the bowel ceased, if not healed, after the operation,

although the fistula opening into the bladder remained open; for there is no local pain or discharge to indicate the existence of any disease, the escape of urine into the rectum alone remaining to prove the presence of the fistula.

These two cases go well to support the remarks I appended to the details of a like case I read before the members of a sister society, and published in the 'British and Foreign Quarterly,' January 1869, and still more to prove the truth of Mr. Holmes's remarks, made in the 'Medico-Chirurgical Transactions' for 1869–70, on the same subject; my observations supporting his conclusions. They tend to prove 'that ulcerated openings sometimes take place between the bladder and either the large or small intestines, many of which have no connection with previous stricture of the gut, still less with cancer.'

'That in those cases in which the fæces discharged into the bladder come from the lower gut, and are consequently more solid, great suffering is produced, and that in such of these cases as are not dependent on malignant disease, colotomy, by diverting the fæces from the fistulous channel, may enable the latter to close, and thus relieve the patient's suffering, and restore him to a condition of health and of comparative comfort.' For in both of these cases all clinical evidence tends to indicate that the ulcerative action soon ceased, and after colotomy the ulcer cicatrized; the comfort the operation afforded having been unmistakeable. They have also made me think more highly of the oblique incision in the operation than the transverse or the vertical.

XXII.—*Cases of Distension of the Antrum of Highmore.* By J. Warrington Haward. *Read February* 23, 1872.

THE cases here recorded exhibit three examples of distension of the antrum of Highmore, each of which presents some points of clinical interest.

Case I.

D. H., æt. 4 years, was brought to the Hospital for Sick Children, October 29, 1870. He was of healthy parentage, and a strong child.

In August he began to complain of pain in the right upper jaw, after a few weeks of which, the right canine tooth was shed. At this time he had purulent discharge from the right nostril, which ceased after about a fortnight. The right side of face was then observed to be swollen, and a few days before he was brought to the hospital, an opening formed on the prominence of the cheek, from which purulent matter was discharged.

When seen October 29, there was a decided enlargement of the right upper jaw-bone, causing bulging of the cheek, on the prominence of which, just below the lower eyelid, was a small opening, through which a probe easily entered the antrum. The distension of this sinus was obvious but not great, not sufficient to displace the eye or obstruct the nostril. The teeth were natural, except that the canine of that side was gone. I extracted the first temporary molar, and punctured the antrum by thrusting a trochar through its socket. The opening gave exit to some viscid purulent fluid. I then syringed out the antrum with warm water, and afterwards with a weak solution of sulphate of zinc. This was done while he was under the influence of ether, which I am accustomed to use as an anæsthetic especially adapted for children. The syringing was repeated November 5 and 19 and December 3 and 17, the discharge diminishing each time.

January 14, 1871.—The bulging of the cheek was diminished, but a little discharge still escaped from both openings. He had no pain.

February 11.—The opening on the face had closed, and the cheek nearly regained its natural appearance.

25.—He appeared well. I saw him at the end of March, when he remained well.

Case II.

J. T., æt. 26, came to me in September 1868, complaining of what he termed a troublesome boil on the outer surface of left cheek. He said that for about eight months it had caused him annoyance by (as he expressed it) coming to a head every three or four weeks and discharging for a few days, then closing for a time till the same process recurred. Before it discharged he always had aching pain in that side of the jaw. I found, situated on the cheek, over the outer part of the prominence of the left upper jaw-bone, a small granulation on a thickened and raised base, in the centre of

which was a minute opening. Through this I passed a fine probe into the antrum, when some matter escaped by its side. The cheek on that side was very slightly more prominent than the other, and he thought the nostril not quite so free. The teeth on that side seemed perfectly sound, and he was very anxious not to lose any. I therefore introduced into the antrum, through the existing opening, a very fine trochar, and syringed out the sinus first with warm water, and then with a weak solution of sulphate of zinc. This I did four times at intervals of four days. A week after the last syringing the opening closed, and gave him no more trouble. I saw him nearly two years afterwards, and no recurrence of the distension had taken place; there was no deformity, and scarcely any scar visible.

Case III.

In this patient the distension of the antrum was only part of a more serious disease, but was of great interest from a diagnostic point of view.

On January 8, 1871, I was asked by Dr. Hare, of Great Baddow, in Essex, to see a lady under his care, with a tumour of the upper jaw. The patient was 56 years of age, and in good health. Growing from the right upper jaw, was a tumour extending from the position of the first bicuspid tooth to the posterior termination of the alveolar process, projecting outwards under the cheek and inwards on to the palate. It was of the shape and size of an elongated walnut, firm, insensitive, not vascular. There were two small ulcerations on its surface, from which there was an offensive discharge. She had first observed it three months previously. It had been punctured without giving exit to anything or causing her any pain. She had, however, some neuralgic pains on right side of head and face. There was also evident expansion of the right antrum; the cheek was bulged, and the orbit and the nostril encroached upon. The teeth were many of them carious, and there were several decayed stumps in both jaws; and on examining the mouth I discovered a similar tumour, the size of a small hazel nut, in the situation of the left second upper molar, and a bony tumour of rather larger size on the alveolus of the lower jaw near its centre. This last, the patient told me, had existed twelve or fifteen years, and had at first been soft like the other tumour, but had gradually become bony. There were no enlarged glands about the face or neck, excepting a solitary slightly-enlarged

posterior cervical gland on left side, which had been in the same state many months. There was no cachexia.

I expressed the opinion that the tumours were of the nature of an epulis, and should be removed, with the portion of alveolus from which they grew, and that the expansion of the antrum was due to fluid distension. On January 11, therefore, assisted by Dr. Hare, and Mr. Wheeler of Chelmsford, I removed the tumour of the right side with the whole of the alveolar process, from the first molar backward. Under the middle of the tumour were the stumps of two decayed molars, which I removed, and then made a free opening into the floor of the antrum, which gave exit to a quantity of viscid, rather offensive fluid. I then ascertained, by passing my finger into the antrum, that it contained no solid growth, as I was prepared to remove the rest of the upper jaw had it done so. I then removed on the left side the other tumour and the corresponding portion of alveolus, also an adjacent carious tooth (first molar). The bone was removed freely on both sides, and I ascertained that I was well beyond the disease.

The patient went on well after the operation; the antrum was frequently syringed out with a warm solution of permanganate of potash, and at the end of the month the mouth had nearly healed.

In the begining of February, however, there was an evident recurrence of the tumour on the right side, which grew rapidly. That on the left side also soon began to grow again, but remained of small size. On February 19, the tumour of the right side had grown about to the size of that removed. A tumour was also to be felt in the lower part of the abdominal wall, and another had appeared on the outer and upper part of the left pectoral muscle. The patient was anxious for another removal of the tumour of the jaw, but from this I dissuaded her. Mr. Le Gros Clark subsequently also saw her, and advised that no further operation should be attempted.

March 5.—There was some superficial sloughing of the tumour of jaw, from which was a fœtid discharge; the antrum had again become distended. The tumour in abdominal wall had increased to two inches in diameter, was firm, and of irregular shape; that of pectoral region was now of the size of a flattened hen's egg. I also discovered a tumour of the size of a chestnut on the left side of the neck, and another about the same size on the inner side of the lower part of

right thigh. There was loss of flesh, a good deal of pain in face and head, and slight cough. After this I did not see the patient, but Dr. Hare informs me that the tumours continued to increase in size, and about the 20th of March the cough became severe, with bloody expectoration, and rhonchus over both lungs; the lung symptoms increased in severity, and death took place on March 30.

A microscopical examination of the tumours removed from the jaw, proved them to be both of the same nature; namely, oval-celled sarcomata. I could discover no myeloid cells, but in one part of a section the cells were becoming elongated, and approaching the character of the fasciculated sarcoma. Unfortunately the family would not allow of any *post-mortem* examination, and I was not able to obtain any of the secondary tumours.

Concerning the first two of these cases this is to be noted: that while there was yet but little expansion of the antrum, an opening had formed upon the cheek, and my chief reason for narrating them is to point to the need of procuring an opening into the mouth, as early as possible in all cases of distension of the antrum, that an external scar may be avoided. I have now a child, 8 years of age, under my care, in whom an opening has formed in the same position as in the first case (under the lower eyelid), in whom also there was but moderate distension of the antrum; and during the last twelve months I have seen three similar cases, in two of which there is considerable puckering of the skin and consequent disfigurement of the face from the opening thus forming, the importance of avoiding which has thus been rather forcibly brought before me. The second case shows that when the distension of the antrum is not the result of the irritation of carious teeth or bone, nor of new growth, the simple washing out of the cavity with an astringent may suffice for the cure of the disease; it also enhibits with how slight a distension of the antrum an opening may form on the cheek.

The third case presented several points of interest in diagnosis, and serves to remind us that when distension of the antrum occurs in connexion with a solid tumour of the upper jaw, it does not follow that this distension is due also to the solid growth, a point sometimes of much clinical importance. I thought that in this case the tumour was probably a fibrous epulis—partly from its own characters and partly from the existence of the tumour of the lower

jaw, which was of many years' duration, and had become ossified. And considering that an epulis was most frequently connected with a carious tooth, and that this one grew from the position of the tooth which most often has connexion with the antrum, it seemed to me probable that the same cause which had determined the growth of the epulis might also have caused chronic inflammation and distension of the antrum. The regularity of the expansion of the sinus also favoured this view, which proved to be correct. My opinion, however, as to the nature of the tumour was erroneous, and I do not doubt that it would have been better to have left the growth alone. The case also exhibits the malignancy of this kind of growth, and its tendency to rapid recurrence, even after free and complete removal.

XXIII.—*A Case of Hyperpyrexia (heat-stroke) in Rheumatic Fever, successfully treated by cool baths and affusions.* By HERMANN WEBER, M.D. *Read March 8, 1872.*

IN January 1868, several cases of rheumatic fever, terminating fatally with a sudden excessive rise of temperature, accompanied by coma and other brain-symptoms analogous to those in heat-stroke, were related before this Society by Drs. Murchison,* Sanderson,† and myself.‡ Papers on the same subject had just previously been published by Dr. Ringer§ and by Dr. Kreuser.‖

In discussing the treatment in my communication, I mentioned my belief that 'rousing the nerve centres and

* Cases of acute rheumatism with extremely high temperature before death. 'Clinical Society's Transactions,' vol. i. p. 32.

† 'Clin. Soc. Trans.,' vol. i. p. 34.

‡ Two cases of sudden death from the nerve centres in rheumatic fever, with excessive temperature before death. 'Clin. Soc. Trans.,' vol. i. p. 21.

§ On some fatal cases of rheumatic fever, accompanied by a very high temperature of the body; namely, 110° to 111° F. 'Med. Times and Gazette,' 1867, vol. ii. p. 378.

‖ 'Die Complicationen des acuten Rheumatismus,' 'Med. Correspondenzblatt d. Würtemberg-ärztlichen Vereins;' and 'Jahresbericht d. Medicin' v. Virchow u. Hirsch, Jahr 1866, ii. p. 269.

abstraction of heat by the cold bath, cold affusions, or by the cold wet sheet, would be the most promising plan.'* At the same time I expressed the fear that if once the temperature had risen to 108° Fah. (42·23°), our efforts would probably be useless. The plan alluded to has since been proved to be useful, and the fear, I am happy to say, to be unfounded, by Dr. Wilson Fox's successful treatment of two cases of this nature.† His plan consisted mainly in the use of prolonged and repeated cool baths, in the application of ice, and in the administration of brandy and quinine in large doses, a plan which he has carried out with admirable energy, and the results of which are described in a very instructive manner in his communication 'On the Treatment of Hyperpyrexia,' where also the histories of two earlier but fatal cases of the same nature are to be found.

I now have the satisfaction of likewise recording a successful case, treated entirely by means of cool baths and affusions, the first case of *rheumatic hyperpyrexia*, I may observe, which occurred to me since I related to the Society the two fatal cases in January 1868.

Summary.—A youth, æt. 16, had rheumatic fever after sore-throat in August 1871; about the twelfth day of the rheumatic fever sudden rise of temperature to 108·2° F. (42·38° C.), with delirium and other brain-symptoms; reduction of heat and removal of brain-symptoms by cold baths and cold affusions; eleven hours later renewed threatening of hyperpyrexia, again removed by the same means, after which convalescence gradually becomes established.

R. K., a youth æt. 16, usually residing in the United States of America, never having suffered from rheumatic fever, was seized with severe sore-throat, probably cynanche tonsillaris, in the middle of July 1871, while preparing for a tour to Europe. He had apparently been well for some days, when, on board the steamer from New York, he was seized on August 3, with pain and swelling in the right knee, attended with fever; other joints were subsequently affected, and when I saw him first, on August 11, at 8 P.M., he exhibited the usual phenomena of rheumatic fever, aggravated only by great restlessness, which I was inclined to ascribe to the fatiguing railway journey from Liverpool. Both wrists and

* *Loc. cit.* p. 31.

† 'On the Treatment of Hyperpyrexia, as illustrated in Acute Rheumatism, by means of the external application of Cold.' Macmillan and Co., 1871, and 'Lancet, 1870, ii. and 1871, ii.

the right knee were swollen and painful; the heart's sounds were almost normal—the first being slightly prolonged near the apex; bowels rather costive; urine in moderate quantity, faintly acid, free from albumen. Spec. grav. 1024. P. 110. T. 102·2 F. (39° C.) in the axilla.

Treatment.—Absolute rest in bed; the room to be kept as cool as possible; milk diet; 15 grains of hydrate of chloral at bed-time; 3 grains of quinine three times a day.

August 12, 9 A.M.—Has slept better, but the restlessness continues; perspires freely, and the trunk is covered with miliaria rubra; tongue furred; bowels properly moved. P. 105. T. 101·8° F. (38·78° C.)

7 P.M.—No change. P. 118. T. 102° (38·89° C.). To continue with the chloral and the quinine.

13.—7 A.M. His sleep was much disturbed by violent dreams during the first part of the night after the chloral, and he was sick towards the morning. He complains much of itching, especially on the trunk, and can scarcely be prevented from scratching. The miliaria rubra as before; the perspiration continues but is diminished: joints less painful, but the swelling has not altogether disappeared. Heart's sounds as before. Great thirst. P. 93. T. 101·8° F. (38·78° C.). To continue with the quinine. To give as much iced water as the patient likes. To omit the chloral at bed-time.

During the day patient complained much of heat, while the pain in the joints was slight. Perspiration moderate. He passed much urine, and had two solid motions. Heart's sounds as before.

8 P.M.—P. 118. T. 101·6° F. (38·66° C.). R. 22.

14.—He slept at intervals during the night, but his usual restlessness became much increased towards the morning, and especially after 5 A.M., when he began to complain of noise in his ears, and giddiness, and always wanted to pass urine. At 7 A.M. he vomited, passed a fluid motion into bed, and was delirious.

7.30 A.M.—The face was livid, the eyes injected, the surface of the body hot and dry; he was murmuring apparently to himself, taking no notice of those around him, but he could with some difficulty still be roused to a certain degree, and made to answer questions; the articulation, however, was quite indistinct.

7.30 A.M.—P. 148. T. 107·8° F. (42·11° C.). R. 56. He was then rubbed with ice over the feet and chest, while a bath was arranged as quickly as possible; and at 7.45 A.M. when the temperature had risen to 108·2° F. (42·36° C.), he

was placed in the bath, and cold water was at intervals poured over his neck and partly over his head.

The following table gives the principal points connected with this procedure. I only must remark that the temperature was taken just before, during, and after the bath in the cavity of the mouth, the thermometer being constantly kept in position (under the tongue) by an assistant; and a non-registering thermometer was used in order to allow a continued observation of the changes of temperature without the necessity of removing the instrument.

Time	Pulse	Temperature	Resp.	Remarks.
Aug. 14 7.45 A.M.	158	108°·2 F (42·36 C)	64	The temperature of the room was 76° F. (24·4° C), that of the water of the bath 71° F. (21·7° C).
„ 7.50 „	138	108·2 F (42.36 C)	34	Respiration less superficial, but unequal and irregular.
„ 7.55 „	124	106·6 F (41·44 C)	28	Face less livid, pulse stronger.
„ 8.2 „	116	104·0 F (40·0 C)	21	Looks almost natural.
„ 8.10 „	112	103.0 F (39·45 C)	20	Patient begins to shiver; pulse less distinct.
„ 8.15 „		101·8 F (38·78 C)	18	Pulse scarcely to be felt; shivering increased; patient is removed from the bath and placed in bed between woollen blankets. The temperature of the water had risen to 82° F. (27·8° C)
„ 8.25 „	110	100·0 F (37·78 C)	15	
„ 8.35 „	105	99·0 F (37·22 C)	14	Has fallen asleep, and sleeps quietly in spite of the thermometer in his mouth.
„ 8.50 „	105	98·8 F (37·11 C)	14	General perspiration.
„ 9.5 „	102	99·0 F (37·22 C)		
„ 9.30 „	104	99·5 F (37·5 C)	14	
„ 10 „		99·8 F (37·68 C)		
„ 11 „		100·2 F (38·89 C)		On waking at 11 A.M. he complains of great lassitude, general soreness of the whole body. He is perfectly conscious, the voice is weak but the articulation is good. Is thirsty, takes half-pint of milk. No pain in the joints. Skin and tongue moist.

In the course of the afternoon the patient slept now and then, but became more restless after 3 P.M.

At 3 P.M. P. 112; T. 100·8°F. (38·22°C.); Resp. 18.
„ 5 P.M. „ 103°F. (39·45°C.)
„ 6 P.M. „ 104·8°F. (40·45°C.)

At 6·40 P.M. the temperature had risen to 105·8 (41° C.), and the patient, who was very restless and slightly delirious, was at that time again placed in a bath, the points connected with which are again tabulated as following:

Time	Pulse	Temperature	Resp.	Remarks
Aug. 14 6·40 P.M.	148	105.8° F (41· C)	38	The temperature of the water was 72° F. (22·2° C.), that of the room 77° F. (25° C). Water was at intervals poured over the back of the head and neck, as in the morning.
„ 6·45 „		106·2 F (41·22 C)		
6.50 „	138	105·0 F (40·56 C)	36	Pulse distinct; slightly irregular.
„ 6.55 „		104·20 F (40·12 C)	35	
„ 7 „	105	102·6 F (39·22 C)	24	Looks almost natural. Pulse very weak and irregular.
„ 7.5 „		101· F (38·34 C)	18	Pulse scarcely to be felt; slight shivering. The patient is put into bed between woollen blankets, as in the morning.
„ 7.15 „		99·0 F (37·22 C)		
„ 7.30 „		98·6 F (37· C)		Patient asks for beef-tea; takes half-pint; intellect quite free.
„ 7.45 „	85	98·2 F (36·78 C)	19	Patient is asleep.
„ 8.15 „	85	98·4 F (36·9 C)	12	Pulse regular.
„ 9 „		98·2 F (36·78 C)		Perspires freely; takes on waking about half-pint of warm milk.
„ 10 „		98·0 F (36·67 C)		Patient is again asleep.
„ 11 „	82	98·2 F (36·78 C)	12	Perspiration continues.

The patient had a good night, but was on the morning of the 15th still very weak, with a feeling as if 'bruised all over.'

He perspired freely; the bowels were moved twice; the urine was scanty, and loaded with lithates, spec. grav. 1032; contained traces of albumen, but no sugar. There was scarcely any pain, and only slight swelling in the affected joints. He took much milk and beef-tea, and some chicken. No stimulants and no medicines were given.

August 15.—

8 A.M.	P. 80;	T. 97·8°F. (36·56°C.);	Resp. 14.
4 P.M.	„ 92	„ 99·2°F. (37·34°C.)	
10 P.M.	„ 85	„ 99·0°F. (37·22°C.)	

16.—Complains of stiffness and pain in both shoulders and left wrist.

9 A.M.	P. 78;	T. 98·0°F. (36·66°C.);	R. 12.
7 P.M.	—	„ 99.8°F. (37·11°C.)	

17.—Has slept well; the perspiration has diminished; the urine is free from albumen, clear, moderately acid, and more abundant, with a spec. grav. of 1025.

8 A.M.	P. 75;	T. 98·0°F. (36·66°C.)
6 P.M.	—	„ 98·8°F. (37·11°C.)

After this date the patient's temperature was never found above 99·2°F. (37·34°C.); the strength increased; the heart remained unchanged, i.e., the first sound was still rather long, though scarcely to be called a bruit. He was able to be out of bed for some hours on August 22, i.e. eight days after the attack of hyperpyrexia, although slight pain and stiffness in both shoulders and in one of the elbows and wrists continued till the end of the month.

Remarks.—The nature of the condition appears to me, as I mentioned on a former occasion, in all essential points identical with that of ordinary heat-stroke from external heat, and I think that both ought to be designated by the same term. The words 'heat-stroke,' 'sun-stroke,' and 'insolatio,' rather lead to the idea of external heat as the cause of the affection, while the term 'hyperpyrexia,' as employed by Dr. Wilson Fox in his essay on the subject, indicates one of the principal features of the condition itself, and appears, therefore, preferable.

The hyperpyrexia as the effect of external heat, has long been known, while the allied affections resulting from lesions of the cervical marrow and from internal diseases have only quite recently attracted more general attention. The excessive rise of temperature in the former class has, as far as I know,

been first described by Sir Benjamin Brodie,* and similar cases have afterwards been related by Billroth,† Naunyn and Quincke‡ and myself,§ while the occurrence of hyperpyrexia in connection with internal diseases has first been noticed by Wunderlich.|| The important physiological experiments more or less touching on the subject by Claude Bernard,¶ Schiff,** Tscheschechin,†† Naunyn and Quincke‡‡ are known to this Society, as also the able treatment of the whole subject of pyrexia by Dr. Parkes§§ and Dr. Gee.||||

It is now known that hyperpyrexia may supervene in various diseases, but it appears to do so in no disease so frequently as in rheumatic fever. Some light may therefore perhaps be thrown on the subject by examining the peculiarities of rheumatic fever.

Rheumatic fever is one of the most trying diseases, causing restlessness and constant irritation of the nervous system, which may thus more easily lose its balancing power. A complication occurring infinitely oftener in this than in any other disease is endocarditis, slight degrees of which probably are often present even when the stethoscope does not indicate them. This leads to the question whether minute embolism of a particular portion of the nerve-centres may be the effect of such endocarditis and the cause of the hyperpyrexia. Another peculiarity of rheumatic fever, possibly connected with the one just mentioned, is the occasional occurrence of chorea either in the course of or at the apparent

* Pathological and surgical observations relating to injuries of the spinal cord. —'Medico-Chirurgical Transactions,' vol. xx', pp. 118-164, 1837.

† 'Beobachtungsstudien über das Wundfieber und accidentelle Wundkrankheiten. 'Archiv. f. Klin. Chir.,' vol. ii., p. 482, 1862.

‡ Einfluss des Centralnervensystems auf die Wärmebildung im Organismus. Reichert und du Bois. 'Reymond's Archiv.,' 1869, Heft ii.

§ Cases of lesion of the cervical portion of the spinal marrow, exhibiting the phenomena of heat-stroke. 'Clinical Society's Transactions,' vol. i., p. 163, 1868.

|| *a.* Bemerkungen bei einem Fall von spontanem Tetanus. 'Archiv. für Heilkunde,' vol. ii., p. 547, 1861.

b. Ein weiterer Fall von post-mortaler Steigerung bei einem Tetanischen. 'Archiv. f. Heilkunde,' vol. iii., p. 175, 1862.

c. Ueber die Eigenwärme am Schluss tödtlicher Neurosen. 'Archiv. f. Heilkunde,' vol. v., p. 205, 1864.

¶ 'Comptes rend.,' 1852 et 1853, t. 34 et 36.

** Untersuchungen über die Physiologie des Nervensystems. Frankfurt, 1855.

†† Zur Lehre von der thierischen Wärme. 'Archiv. f. Anatomie und Physiologie,' 1866, p. 151.

‡‡ Ueber den Einfluss des Centralnervensystems auf die Wärmebildung im Organismus. 'Archiv. f. Anatomie und Physiologie,' 1869, Hefte 2 und 5.

§§ Gulstonian Lectures on Pyrexia, 'Medical Times and Gazette,' 1855.

|||| Gulstonian Lectures on the Heat of the Body. 'British Medical Journal,' 1871, vol. i.

termination of rheumatic fever, or also just before the appearance of the usual symptoms of this disease. Without entering into the debated question of the dependence of the choreic symptoms on minute embolism, it will probably be conceded that they point to some derangement in the functions of certain parts of the brain or medulla oblongata. It may then be asked: 'Does the hyperpyrexia of rheumatic fever depend on an analogous affection, embolic or otherwise (as for instance, stagnation or coagulation in the small vessels, i.e., autochthonic plugging), in the hypothetical regulatory centre of chemical changes and heat?'

I shall hear the objection that if the cause were embolism or autochthonic plugging, the hyperpyrexia could not be so rapidly overcome by treatment, but I do not find this objection convincing. A very minute embolus may cause a shock to a vital organ, and the organ, if death be prevented during a comparatively short space of time, and provided the injury be not too great, may resume its functions, or a rapid change in the internal circulation, as effected by the application of cold to the surface, may remove little impediments in the capillaries.

I feel, however, that I touch hypothetical ground, and will, therefore, proceed to something more like fact.

The *prognosis* of rheumatic fever hyperpyrexia, if left to itself, is unfavourable, for, as far as I know, no recovery is on record, when once in rheumatic fever a temperature of 108° (42·25°C.) had been reached. On the contrary, all the twenty-two cases analysed by Dr. Wilson Fox rapidly terminated in death, until by the use of cold baths, cold packing, and iced enemata, a more successful treatment has been introduced.

The first case of recovery to my knowledge was communicated by Dr. Meding.* The patient, a female, æt. 22, had rheumatic fever after erysipelas; the disease was complicated with endocarditis. On about the twentieth day from the commencement of the erysipelas, the ninth from the discovery of the endocarditis, brain-symptoms supervened, and the temperature rose to 42·5° (108·5°F.). The treatment then adopted consisted in sponging the neck and breast with iced water, in applying cold wet towels over the front of her chest, and in giving an enema of iced water every half-hour. This treatment was attended by rapid improvement of the head-

* A case of excessive rise of temperature, with preservation of life. Archiv. f. Heilkunde, 1870, p. 467.

symptoms, and a reduction of the temperature to 37·5° (99·5°F.) within six hours; a condition which passed over into convalescence without a recurrence of hyperpyrexia or of any fresh joint affection.

The two most striking and most carefully recorded cases of recovery, however, are those of Dr. Wilson Fox. The details of these cases, and the remarks of the author, are very important and suggestive.

Dr. Wilson Fox used baths of about 98°F. (36·66°C.), the temperature of which was gradually lowered to 78°F. (25·55°C.), and availed himself also of the use of ice-bags and wet sheets; he combined with this treatment the administration of stimulants and of quinine in large doses, but he seems himself to regard these additions only as adjuncts, and the hydropathic elements as the main part of the treatment. Dr. Meding's case and the one which forms the subject of this communication, show, at all events, that these additional remedies are not in all cases required.

The manner in which the abstraction of heat by the means just mentioned acts in these cases is very remarkable, and may throw light on various questions of physiology, pathology, and therapeutics. I will not enter on this subject at present, but venture to draw attention to a point which I have not yet seen mentioned, viz., the marked difference in the action of the hydropathic or rather hydrotherapeutic plan in these forms of hyperpyrexia, and in the ordinary pyrexia of other fevers, as typhus, enteric, and scarlet fever. In the large number of cases of the latter in which I have employed baths, varying in temperature and duration, the heat of the fever has been reduced only for a time, in order to rise again sooner or later according to the intensity of the pyrexia and the stage of the disease. Thus in a case of severe *typhoid* or *enteric fever*, in a man æt. 26, the temperature in the rectum on (probably) the ninth day of the disease was:

Ninth day,—
9 A.M. 103·7°F. (39·84°C).
6 P.M. 104·9°F. (40·5°C.)

Tenth day,—
7 A.M. 103·84°F. (39·9°C.) Bath of 72°F. (22·2°C.) during 14 minutes.
7·14 A.M. 100·6°F. (38·1°C.)
7·40 A.M. 99·2°F. (37·32°C.)
10·30 A.M. 103·3°F. (39·6°C.) Bath of 73°F. (22·8°C.) during 15 minutes.
10·45 A.M. 100·5°F. (38·06°C.)
11·15 A.M. 99·5°F. (37·5°C.)
3 P.M. 104°F (40°C.) Bath of 74°F. (23·3°C.) during 18 minutes.

3·30 P.M. 100·4°F. (38°C.)
4 P.M. 99·0°F. (37·24°C.)
7 P.M. 103·3°F. (39·46°C.) Bath of 74°F. (23·3°C.) during 16 minutes.
7·40 P.M. 99·2°F. (37·35°C.)
11.45 P.M. 103·1°F. (39·44°C.) Bath of 73°F. (22·8°C.) during 18 minutes.

In this case the principle was carried out that a bath of about 70° to 75°F. (21·1° to 23·9°C.) was given whenever the temperature rose above 103°F. (39·39°C.), and that the patient was kept in the bath till he began to shiver. While on the tenth day of the disease the carrying out of this plan demanded five baths, it required four on each of the 11th and 12th days, two on the 13th and 14th, one only on the 15th and 16th, and none on the following days, the defervescence and convalescence being gradual and uninterrupted.

A permanent reduction of the pyrexia in fevers known to be of longer duration, as typhus and enteric fever, I have never seen produced by one or two baths, when they were given at the height of the disease; while in Dr. Meding's case, and in the one before the Society, the hyperpyrexia was entirely and finally overcome in less than twelve hours.

An analogous effect I have seen only in a case of mild common heat-stroke (hyperpyrexia from external heat) which has come under my observation in the course of last summer, and in which the temperature fell within an hour, under the influence of the cold bath, cold affusions, and rubbing of the chest and neck with ice, from 106·7°F. (41·5°C.) to 98·0°F. (36·66°C.), and never rose afterwards beyond 101°F. (38·34°C.), and this only for a short time, owing to the pulmonary complication so constantly connected with high degrees of pyrexia.

In Dr. Wilson Fox's cases the action of the method was not so permanent, and it is necessary therefore to be watchful for a recurrence of the dangerous symptoms. In both of Dr. Fox's cases, however, there were grave cardiac and pulmonary complications, to which the subsequent high temperatures are partly, no doubt, to be ascribed, as also the long duration of the diseases.

This difference in the action of the hydro-therapeutic plan in hyperpyrexia and in the ordinary pyrexia of fever is no doubt due to a difference in the underlying causes.

As to the method of using cold, we must to a great degree be guided by the circumstances of each case. If a cold bath can be obtained, this will in most cases be the simplest plan, and the lower the temperature of the bath the more rapid

will probably be the effect. If the patient's temperature is above 107°F. (41·6°C.), and the nerve-centres are in a state approaching coma, the effect of the shock can only be useful, and depression need not be feared from the action of the cold, if not applied for too long a period of time. Although the duration of the bath will be influenced to some degree by the temperature of the water, we must be guided entirely by the condition of the patient while in the bath; the heat of the blood ought to be reduced, if possible, to almost its normal degree, and the nerve centres ought to be restored to a more healthy condition. Dr. Fox's caution, however, that the plan ought not to be carried too far is judicious, for the temperature continues to sink after the removal of the patient from the bath, and the exhaustion of the organs, not only functionally, but more or less also structurally damaged by the excessive heat, might be increased by a too great reduction of the temperature of the body.

If no baths can be given, and ice is at hand, friction of the whole body with lumps of ice is an energetic method of reducing temperature, more so than the mere application of ice-bags, although they are likewise useful. Dr. Meding's plan of iced injections, too, deserves recommendation. Again, if ice were not to be obtained, cold affusions sufficiently long continued, and at intervals repeated, would possibly suffice, and the cold pack would probably have a similar effect.

XXIV.—*Case of Unilateral Face Atrophy, dating from an attack of Chorea.* By THOMAS BUZZARD, M.D. *Read March* 8, 1872.

MARY S., æt. 25, residing at 113 Warwick Street, Westminster, applied to me at the National Hospital for Paralysis and Epilepsy on July 26, 1871, on account of fits which she had suffered from for eleven years. She was a tall and thin young woman, with a somewhat distressed look and nervous manner. Her appearance, however, was especially remarkable owing to a greatly atrophied condition of the right half of her face, of which the following details were noted down.

The right frontal bone is dwarfed, and presents what at first sight looks like a prominence, triangular in form and of convex surface, whose apex lies near the supra-orbital foramen, the base lying along the roots of the hair. But further examination shows this idea of a prominence to be illusory, and to depend upon the presence of two groove-like depressions; of which one, narrow, stretches vertically upwards from the nasal bone, and the other, broader, occupies the space between the apparent prominence and the temporal ridge. These depressions of atrophied bone have between them an osseous island where the bone apparently is in a naturally developed state, and which would correspond roughly to the frontal eminence at which the point of ossification for the bone is placed. It is this portion of bone which appears to project, but does not really do so. Its atrophied margins cause the illusion. The inner half of the superciliary arch is concave instead of presenting the normal convexity which is seen in its corresponding fellow on the left side.

The bones which enter into the formation of the cheek and jaws are much reduced in size on the right side, as the following measurements will show:—

From external angular process of the frontal bone to the inferior angle of the malar bone, left side, 2¼ inches.

Ditto, ditto, right side, 1¾ inch.

From the outer canthus to the tragus of the ear, left side, 3½ inches.

Ditto, ditto, right side, 3¼ inches.

From the tragus of the ear to the mental process of the inferior maxillary bone, left side, 5⅝ inches.

Ditto, ditto, right side, 5¼ inches.

From the condyle to the inferior angle of the ramus of the inferior maxilla, left side, 2¼ inches.

Ditto, ditto, right side, 2 inches.

From the sesamoid cartilage of the nose to the lobe of the ear, left side, 4½ inches.

Ditto, ditto, right side, 4 inches.

The alar cartilage of the nose on the right side is greatly reduced in size and thickness. It measures one-third less than the other in breadth, and is extremely thin. The soft tissues on this side of her face appear to be very deficient in fat.

The right cheek is about ¼ inch thick; the left cheek about ½ inch. This measurement, made by calipers, is necessarily only approximative.

On the mouth being closed a slight chink is left on the

right side, where the upper and lower lips do not quite touch. On the left side they are in close apposition.

The tongue is remarkably affected. Measured from the longitudinal sulcus, which is deep and well marked, to either border, it is found that the right half is ¼ inch less wide than the left. Its external margin is deeply tooth-marked on the affected side. When the tongue is turned upwards it is seen that the under surface does not display the atrophy so strongly. The arch of the palate on the right side is narrower than on the left, to which the uvula appears somewhat pulled over.

The right masseter muscle is greatly thinned, the bone about the angle of the jaw being very distinctly felt through it on the right side. The corresponding part on the left side is covered with a firm, thick cushion of muscle.

There is some atrophy of the right temporal muscle, but this not so well-marked as in the masseter.

The right eyeball is, perhaps, sunk rather deeper in the orbit than the left.

So much for the difference between the two sides.

On the other hand, it is to be noted that there is no difference in the colour of the skin. The hair of the head is alike in quality, quantity, and length on the two sides; there is no blanching of its colour, and it does not fall out. The eyebrows are alike; the eyelashes equally long, measuring ¼ inch. The tarsal cartilages are of equal size.

There is no difference in the size of the ears.

The temporo-maxillary joints appear to be equal in size.

The teeth also show no peculiarity. The 'wisdom' teeth are present in the under jaw, and can be felt presenting in the upper jaw on each side.

There is no alteration of cutaneous sensibility in any part of the face or neck, and there is no itching of skin. The conjunctivæ and the tissues of the eyes generally appear equally well nourished.

The patient can read No. 6 (Jäger) at 11 inches with the right eye; with the left only she can read No. 4 at 8 inches. Perspiration is equal on the two sides. The sebaceous secretion presents no difference. Taste, smell, and hearing are unaffected.

The salivary secretion is normal.

The power of deglutition and the voice are normal.

A systolic bruit is heard at the apex of the heart, which is felt to beat in the ordinary position.

Examination by the ophthalmoscope shows nothing abnormal in the discs.

The patient is generally fidgeting with her right hand, and she has a habit of holding it with the other in order to steady it. There is no want of power of grasp, but anything held in it is shaken about. Under excitement she says that this hand will feel dead.

The right arm is equal in size to the left, and indeed, the disproportion observed in the face does not extend to any other part of the body.

(From a photograph taken by Fradelle and Marshall.)

Family history.—Her father is described as rheumatic and asthmatic. Her mother died of 'some internal complaint.' She has two sisters living, in good health. She has lost no brothers or sisters.

Personal history.—When very young she suffered from measles. At six years old she had chorea, and again at thirteen. The first attack she describes as general; the second as affecting her right side. It was about the time of this second attack of chorea that her face was noticed to be getting thin on the right side. Her elder sister is quite sure that there was nothing wrong before this. The second

attack of chorea was very bad, and lasted several months. When this had somewhat subsided, it was noticed that she had fits—at first in the night only, and about once in four, five, or six weeks. In the convulsion she used to fall out of bed. The fits gradually grew more frequent, and have continued ever since, the longest interval of exemption being two months. At times she would have them every week, at other times every month. For a year or two the fit generally occurred one week after menstruation, but latterly it has been more liable to happen about a week before the period.

Character of fit.—The fit may occur with or without warning. If she gets the warning, the fit is not so bad as if it comes on without notice. A 'queer feeling' starts from the pit of her stomach and runs up to her throat, and she remembers nothing else. There is always a scream; she will fall anywhere, even in the fire. She bites her tongue; she is described as struggling and choking very much, and looking very ghastly. I cannot ascertain whether the convulsions affect one side more than the other. The fit will last ten minutes; she then slides into a sleep which lasts several hours, and on waking from this she feels very dull and heavy. Specks, apparently of extravasated blood, are noticed after the fit about her face and neck.

Her sister tells me that she is very absent, and her memory is very bad. The temper is uncertain, and if put out she is apt to have a fit. She is sometimes very much out of spirits, and will sit by herself and cry, refusing to talk. She is sometimes passionate. Although she has been much to school she has acquired no great amount of learning. Fond of reading, she yet fails to read well, and many words she will not pronounce correctly. Her spelling is very bad. She milks cows (her father is a dairyman) with both hands, makes cheeses, churns butter, but is not to be depended upon on account of the fits.

She has never suffered from acute rheumatism, and there is no history of any injury. She had scarlatina at fifteen. Between the two attacks of chorea she was liable to very violent headaches affecting the right side of the head, and especially the right half of the frontal bone. This liability has continued, and she still suffers from headache at uncertain intervals, sometimes once a week or so. During the headache she says her right eye is 'weakened.' She indicates the brow and temple as the painful parts; the pain seems to go through her. The skin is not tender to the

touch during the headache. During the attack she will retch a good deal, complain of spasms in the chest, and bring up a little clear fluid. She occasionally complains of darting pains in the lower jaw on the right side. There are no spasms to be observed on the right side of the face; but it appears from her own account, that when drinking her face will sometimes 'catch up' on the right side.

Electro-motility.—Tested by the induced current (Stöhrer, single cell), the electro-motility of the facial and masticatory muscles on both sides of the face appeared to be normal.

Progress of the case.—The frequency of the fits has been greatly reduced by the use of bromide of potassium and belladonna. The atrophic condition of the right side of the face remains as described. The quasi-choreic fidgetiness of the right arm still continues.

The patient is presented to the Society.

Remarks.—The pathology of this case seems to me to be very obscure. In most respects it greatly resembles a disease which has been termed by certain writers 'Partial, unilateral, or neurotic face atrophy;' by Laude, 'Progressive laminous aplasia,' or 'atrophy of connective tissue,' but which is best described, perhaps, by Eulenberg under the name of 'facial hemiatrophia,' or 'unilateral face atrophy,' since no hypothesis as to its origin is contained in these latter terms.*

Eulenberg describes the disease† at considerable length, basing his description upon all the published examples. Altogether only thirteen cases have been recorded, of which four were observed in men, and nine in women. In all, the disease began before the age of twenty-five, in ten out of thirteen before the patient was fifteen. In most of them notable innervation disturbances preceded the atrophy, and violent headaches and pains in the corresponding half forehead or upper jaw were especially prominent. In one case, epilepsy was associated with the condition; in another hemiplegia. In a case related by Axmann and Hulter, the patient suffered from his seventh year with irregular spastic contractions of the masticatory muscles of the left side. Out of the thirteen cases, eleven were observed on the left, only two on the right side. Discoloration of skin is the symptom first noted by Eulenberg, and this is accompanied by emaciation of its texture. A white spot forms, gradually enlarges,

* Several cases have been collected by Romberg in his 'Klinische Ergebnisse;' Berlin, 1846; and 'Klinische Wahrnehmungen und Beobachtungen,' Berlin, 1851.

† 'Lehrbuch der functionellen Nervenkrankheiten,' Berlin, 1871.

and becomes yellowish, like the scar of a burn. These spots are the seat of atrophy. The skin appears sunken, and more or less deep cavities form in it, evidently from absorption of the subcutaneous adipose tissue. In places where this tissue was previously in abundance, the skin now immediately overlies the bone, is lifted with difficulty from it, and the fold that can be drawn up is often thinned to a breadth of two millimètres. The hairs of the head, beard, eyelashes and eyebrows are apt to lose their colour or fall out; the sebaceous secretion to grow scanty, and the skin itself to become rough.

The sensibility of the skin was not found diminished in the thirteen recorded cases. Neuralgic attacks in the district of the trigeminus, especially in its supra-orbital branch, were very commonly associated with the phenomena, and in some cases also preceded them. As regards the deeper tissues, the muscles were generally uninvolved, but in some cases they were distinctly diminished. In a case described by Guttmann and Eulenberg, there was distinct atrophy of the masticatory muscles supplied by the fifth nerve, but none in the muscles supplied by the facial nerve, except perhaps in the orbicularis oris. A similar condition is found in the present instance.

Changes in calibre or tonus of blood-vessels do not appear to be necessarily associated with the disease.

The face bones are found atrophied as well as the cartilages, and sometimes the teeth. The tongue also is diminished in size on the affected side; the hard and soft palate and the uvula also participate in the atrophy. The salivary secretion and power of swallowing were never interrupted. Taste, smell, hearing and sight have not been found affected, nor has the secretion of tears proved to be diminished. The adipose tissue of the orbit is apt to shrink, so that the globe becomes more sunken on the atrophic side.

The progress of the disease is very slow. In recorded cases the duration of observations has extended from three to twenty-three years. The lesion is progressive, interrupted, it may be, by short periods of standing still. Whether the lesion reaches an ultimate limit is not known. The general health is usually good.

Stilling explains the atrophy by a 'lessened reflex action of the sensory blood-vessel nerve upon the corresponding vasomotors,' and especially of the nerve branches originating from the second division of the fifth, which ramify upon the

facial arteries. But why he should not at once suggest a direct lesion of the vasomotors is not quite evident.

Samuel, on the other hand, insists that a lesion of vasomotor nerves, causing diminution of blood circulation, cannot be conceived as a cause of the disease. Inflammation, softening, gangrene, but not simple atrophy, would thence arise, or a collateral circulation would be set up, with return to the normal condition of nutrition. Neither irritation nor paralysis of the vasomotor nerves produces experimentally the phenomena of a simple progressive atrophy. The existence of special trophic nerves seems necessary to explain the phenomena.

Mantegazza* found that after sections of nerves, the most various deep tissues (muscles, bones, periosteum, connective tissue, lymphatic glands) would take part in the consecutive changes. Amongst other results, muscular atrophy and disturbances in nutrition of bone occurred.

The case which I have related differs from most of those referred to by Eulenberg, in the absence of marked changes of nutrition in the skin, hairs, and sebaceous glands; in all other respects it resembles these cases. In spite of the divergence in certain symptoms, the points of resemblance are so numerous and striking that it seems to me the present case can only be referred to this category.

As regards its probable pathology, it is impossible to speak with much confidence. The association of sensory disturbances indicated by the liability to neuralgic seizures, the serious central troubles, epilepsy, and chorea, by which it has been accompanied, its apparent confinement to certain nerve districts, as well as its sharp limitation to the median line, suggest strongly a neurotic origin. Romberg's term 'tropho-neurosis,' would seem, indeed, to be applicable to it without objection. It is in the districts supplied by all three branches of the trigeminal nerve that the failure of nutrition is to be observed; but, at the same time, it is to be remarked that all the parts supplied by these nerve trunks are not equally affected, some, indeed, escaping altogether. The lesion, however, corresponds to the distribution of the fifth more nearly than to that of any other cranial nerve. The motility of muscles supplied by the portia dura is unaffected. Having regard to the existence of a mitral bruit, it is perhaps not unfair to offer the suggestion that embolism of the

* 'Giornale Veneto di scienze mediche,' Ser. 3, tom. vi. 1867.

vascular supply of a nerve centre may have been the first step by which the influence of trophic nerves upon the affected tissues was interrupted, and the series of changes inaugurated. Bearing in mind the previous history of the patient, it is of interest to remember in reference to this point the opinion of my colleague Dr. Hughlings Jackson, that embolic plugging of the minute vessels supplying the corpus striatum is the immediate cause of chorea. The same cause, supposing this to have produced the chorea, may have interfered with the function of trophic nerves distributed to the right side of the face in this patient.

XXV.—*Case of Lichen Ruber of Hebra.* By Tilbury Fox, M.D. *Read March* 8, 1872.

I THOUGHT the Society's time might be well employed in examining the instance of a very interesting but very rare disease which I now bring under the notice of its members. The case is one of lichen ruber, and possesses the general features of that malady as depicted at length by Hebra in his work, though it lacks some of the minor characters, but then those have scarcely had time to show themselves. This is only the fifth case of the kind I have seen in England. The first instance I recorded in the 'British Medical Journal' a year since. The following is the history of my present case. The patient, A. E., is a young woman, 17 years of age.

Family history.—She is one of a large family of twelve children, of whom six are living. The only one of those living who has been ill is a child who has suffered from an eczematous attack. The husband has been suffering from softening of the brain for about two years. The mother has never had any illness. A sister of the mother and the mother of the mother were both consumptive.

Previous history.—Had always enjoyed good health, and has, in fact, never ailed till 'this eruption came out.' About three months ago she noticed a few spots, about half-a-dozen, above the knee of either leg. Before these spots came out the girl felt 'rather low' and very nervous.

She was 'at home for the holidays when attacked.' The mother regarded her as in good health at the time. On further inquiry it seems that the girl had been suffering from headaches for some little time. She had been sent to school just before, as her education had been neglected, and she fancies 'the study' occasioned these headaches. The arrangements at school were apparently very good as regards sleeping accommodation, diet, &c., except that the supply of fresh vegetables was not great. When the girl returned to school on January 22, she wrote to say that she suffered intensely from the irritation, which had always been present more or less, and that the spots appeared on the stomach and on the arms. The neck was the part next attacked. The head then became affected, the hair coming out and the scalp getting scurfy. There were no symptoms of internal disorder of any kind except constipation. She had lost flesh. She went to a doctor, who said the disease was 'eczema.'

Present state.—The girl looks very pallid indeed, but she is fairly nourished. She trembles a good deal, and is 'dreadfully nervous.' She says that the irritation is so great at night that it keeps her awake and makes her languid. She feels always very hot. Two weeks since the arms were very tender, and 'she could not bear anyone to touch them.'

The following are the appearances presented in different parts of the body:

Head.—There are the appearances of a slight seborrhœa: one or two hair follicles are enlarged and feel as little knots.

Face.—At either side of the forehead, and stretching down by the side of the ear to the neck, is a faint reddish erythematous-looking streak, which on close examination is seen to be made up of minute pale red papules, flattened, and of glazy aspect, and having each a central punctum. The rash looks like a minute lichen.

The neck looks as if it were the seat of what is termed an 'erythematous eczema,' but imperfectly developed; the characters of the rash are the same as that on the body, and the description of the latter will be given in full.

The trunk.—At first sight it looks as if it were covered over with a copper-coloured rash. The condition suggests the idea of an extensive syphilitic psoriasis, in which there is a good deal of staining, and not very marked though extensively scattered rash. On close examination the eruption is seen to be made up of patches varying in size from that of a sixpence

and more, and running one into the other; together with isolated and distinct pimples, the patches themselves being produced by the aggregation of papules. These papules are all of one character; they are red, flattened, with a glazy aspect, angular or squarish at base, and having a central aperture or punctum, i.e. the opening of the follicles. The disease commences by pimples, and patches are formed by the springing up of fresh pimples between the already existing ones, and their coalescence. The pimples themselves undergo no change. Some of the patches are covered over by fine desquamatory scales, very adherent. On glancing sideways at the rash it gives one the appearance of a very fine tesselated pavement. At the lower part of the back behind and the stomach in front the eruption is not broken up into such small patches, but is uniformly red and scaly, and of a deeper colour, the truth being that the papules are more vascular and more crowded together so as to form large tracts of eruption that look like psoriasis, only that the scales are few, very fine, and adherent. But the patches are produced by the aggregation of the papules. In fact, tracing the disease from above downwards, we notice transitional stages between the few scattered papules, the smaller patches, and the extensive tract of psoriatic-looking eruption.

The arms present just the same series of phenomena as the back. About the shoulder are scattered red, flattish, shining papules, then lower down small patches with intermingled discrete papules, and from the middle of the upper arm to near the wrist the surface has the aspect of the lower part of the back. About the wrist and at the back of the hand there are the isolated papules and the tendency to form patches by the crowding together of the papules, and these papules are particularly shining red and glazed here. There has never been any discharge of any kind.

Legs.—From just above the ankle, especially at the inner part of the leg, and over the whole of the thigh, the disease is of the same character as that about the back, only that the skin feels and looks more thickened because the papules that form by their congregation the patchiness, are here larger. If we look well into the eruption here it is seen at once that the patches reddened, thickened, and slightly scaly, are formed by the crowding together of red papules formed by deposit and elevation of the hair follicles. The minute scaliness is due to altered formation of the cuticle seated about the apertures of the follicles. In this case it is difficult to make any mis-

take as to the nature of the disease, for at the edge of each patch there are the characteristic papules which have been mentioned so many times before.

The patches in every portion of the body have been preceded by the development of discrete red flattened papules.

The nails are healthy; and the palms of the hands and the soles of the feet free from disease. A good many of the papillæ of the skin are enlarged.

Remarks.—It will be seen that the disease consists entirely of papules variously arranged; in a scattered form at first, then crowded together so as to form patches. There is no interchange of character between the papules and any other form of elementary lesion; that is to say, the papules always remain as papules. They don't become vesicles or pustules, for instance. Then the papules are red, flattened, and glazy on the surface, and these papules are always discrete at first. The patches are not formed by peripheral enlargement of the papules, but by the springing up of new amid the old papules. The formation of the patches gives the aspect of a reddened thickened surface, covered over by thin adherent scales. On the girl's leg the scales are so freely collected that they resemble the large white silvery crusts of psoriasis, but if these scales be removed there are no engorged vessels beneath, and no red points visible.

In my case the irritation was present at an early date. Hebra says it is a late phenomenon. The disease had been confounded with eczema, but it had no feature of catarrhal inflammation, no sero-purulent discharge, which I hold to be an essential characteristic of eczema. The patchy parts might have been mistaken for psoriasis or pityriasis rubra by anyone who overlooked the papular origin of the disease.

Pathologically speaking the disease consists in hyperæmia of the deep part of the hair follicles, and hypertrophy of the cellular portion of the connective tissue forming the root sheet and the follicular wall, especially at its lower part; this hypertrophy being apparently the direct result of the hyperæmia. Why the latter should be limited to the hair follicles I cannot say.

I consider from clinical observation that the lichen planus of Wilson and the lichen ruber of Hebra are one and the same disease, the former being the more localised, the latter the acute and general form.

As regards the treatment, I am giving alkalies and tonics for the slight dyspepsia present, and I am treating the disease

locally as an hyperæmia by oxide of zinc lotions, alkaline and bran baths. I am about to give cod-liver oil and steel. I did not find arsenic agree with my other case.

Addendum.—The subsequent progress of the case was very satisfactory. In the course of a month rest, quietude, the use of the alkalies, and emollient lotions, caused the redness of the skin to fade, and the thickening of the patches lessened together with the irritation.

On April 1 little pittings had taken the place of the papular elevations in many places; in fact, the deposit of new tissue had disappeared: the papules, moreover, had subsided, and as before stated, little depressions took their place, but the pits were red, and still covered over by minute adherent scales. In my other case similar changes occurred; the redness then faded more and more, till finally the surface was left deeply pigmented and somewhat rough from slight scaliness. The present case is going on to that condition very rapidly, and I anticipate a speedy cure of the disease.

XXVI.—*Case of Congenital Hypertrophy of the Tongue.* By George Lawson. *Read March* 8, 1872.

THE little girl, æt. 15 months, who was suffering from this congenital malformation of the tongue, was shown to the members of the Society. She was so stunted and ill-developed as to give the appearance of an infant of about three months old. The fontanelles were as wide open as at birth; she showed no signs of any teeth, nor had she indicated any marks of intelligence. The tongue was a large fleshy mass, which not only filled the mouth, but a large portion of it lolled outwards between the lips. On pressure with the finger the child would withdraw the tongue into the mouth, but it was almost immediately afterwards again protruded. Notwithstanding the size of the tongue, the child could suck well, and take the required amount of nourishment by the bottle. The father and mother were healthy, and had two other children, both of whom were

healthy and intelligent. The child was born at the full period of utero-gestation. The mother attributed the defect to a strong impression she received whilst visiting the Crystal Palace when in about the third month of pregnancy. She said 'she was terribly shocked by the appearance of some African figures with large pendulous lips.'

XXVII.—*Case of Intestinal Obstruction at the seat of a congenital constriction of the gut, and at the point of departure of a diverticulum, probably the remains of the omphalo-mesenteric duct.* By REGINALD SOUTHEY, M.D. *Read March* 22, 1872.

CHARLES P., a strumous-looking lad, æt. 16, was admitted on January 15, 1872, into Luke's Ward with symptoms that betokened intestinal obstruction. No real action of the bowels had taken place for seven days. Vomiting had been frequent. Purgatives as well as enemata had been administered without any relief to his state before his admission, and his condition was manifestly very serious. Temperature 97°. Pulse 96, small, regular. His expression was pained and sunken; his lips were dry; his tongue sodden-looking and dirtily furred; his breathing irregular, and principally thoracic; his abdomen was full, and the abdominal walls themselves tense, swollen and glistening, in parts mottled with livid ecchymoses, the consequence of local hot fomentations. The umbilicus was retracted, and the lineæ transversæ were singularly well-marked, dividing the belly into distinct divisions and deeply indenting the apparently swollen recti abdominales. There was slight bulging in the flanks and but little tympanites, the intestines being apparently full, although no coil of intestine could be distinctly felt, and the outline of the colon was not to be made out. There was slight tenderness on pressure over the abdomen, and this rather more on the right side of the umbilicus than upon the left.

The following history was given me:—The boy was a riveter by trade; had never had any previous illness, neither did he remember having ever hurt or strained himself;

but his friends said that he had received a blow upon the stomach a few weeks ago. He was well and at work on January 8th. During the night 8th and 9th, he was seized with colicky pains, retching and purging. He has never been free from pain for long together since that date, and the bowels have never acted since, but he has taken considerable quantities of fluid food—milk, eggs, and brandy—between the acts of retching. On January 14 the material vomited is reported to have for the first time given out a fæcal odour. Urine is passed frequently in small quantities at a time. Some shown to me was high-coloured and clear, and without albumen in it.

Purgatives as well as enemata had been employed, and his previous treatment appeared to me to have been highly judiciously conducted; no violent deobstruents had been prescribed, and latterly he had been kept under the influence of opium; in fact, although capable of being roused, he lay in a somewhat semi-comatose state. I ordered some leeches to the abdomen, to be followed by a large poultice if its weight did not prove disagreeable to him; directed that he should take a draught containing ether with a few minims of opium in it, the quantity of the latter to be increased or diminished according to its effect; and advised that his thirst should be appeased by sips of iced water with a little brandy added to it.

The large draughts of fluid he had been taking certainly only encouraged vomiting, and the object of my treatment was to relieve pain, and, if possible, relax the state of spasmodic tension in which the external abdominal muscles were held.

January 16.—Three only of the leeches could be induced to bite; then bled but little. The patient passed a restless delirious night, and vomited at 9 A.M. for the first time since admission. The vomiting was very copious, three pints or more of fluid having a light colour and strong stercoraceous smell. T. 97°, P. 100, feeble and thready. The remains of a castor-oil enema administered before admission came away from the bowel after he vomited; it was slightly stained by fæcal matter. An examination of the rectum was made, and a long enema tube was passed high up the bowel without causing pain or meeting with any obstruction, and warm olive-oil was slowly injected; this returned, however, quite unaltered, immediately.

1·30.—When I was making my visit he vomited again

with great violence at least three pints of fluid. This complete emptying of the stomach appeared to relieve him greatly. His countenance, although pinched and anxious enough, at once expressed less pain, and he obtained some sleep shortly afterwards.

My diagnosis from the first had been intestinal obstruction, probably from some strangulation or twisting of the gut low down in the small intestine. The symptoms and history were highly significant of this: the pain, the early and persistent vomiting, the constipation, the fulness of the abdomen, the physiognomy of the patient. At the same time I did not think that perforation or peritonitis could yet have supervened, for urine was freely secreted. The temperature was not below 97°. The vomiting was not constant but at long intervals of time, and the face was hardly sufficiently expressive of collapse. I held a consultation with my colleague, Mr. Callender, in which the probabilities of the case were carefully considered, as also the justifiability of operative interference. The gravity of the symptoms, the inefficacy of previous treatment, the necessity of no further delay if an exploratory operation was to be performed with any hopefulness at all, were discussed. Finally, the operation of gastrotomy, which I was prepared to recommend, was decided against in deference to the opinions of two other of my surgical colleagues.

The lad was kept under the influence of morphia by subcutaneous injections. His temperature had fallen on January 17 to 94·7°, and without apparently suffering much pain. He was singularly free from flatulent distension from first to last. He gradually sank, and died early on the morning of January 18.

Autopsy thirty-six hours after death. On opening the abdomen, slight general peritonitis noticed. A diverticulum of intestine, about four inches in length, found attached to anterior abdominal walls about two inches below umbilicus. This diverticulum, which had the calibre of a goose-quill, was given off from the intestine about two feet above the iliocœcal valve, and was no doubt the remains of the omphalo-mesenteric or vitelline duct. The ileum just above this diverticulum was so constricted as only to admit the top of the little finger, and at the point of constriction the coats of the intestine, both muscular and mucous, were ulcerated through the continuity of the intestine being only maintained by the thickened peritoneum. The gut above

was much distended with fluid semi-fæcal materials. The two feet of bowel from the constriction to the iliocœcal valve was intensely congested, spotted in parts with ecchymoses, and at several points in it gangrenous-looking ulceration was commencing. But there were two places in this otherwise highly-congested portion apparently of strangulated intestine singularly free from all vascularity—one was situated three inches below the seat of constriction, the other just one inch above the valve; indeed, the appearances were not easy to explain, except by hypothesis, that this coil or knuckle of intestine had been strangulated by the diverticulum, or had slipped between the diverticulum and the abdominal wall, and then become twisted upon itself. The colon was empty; its mucous membrane normal. The stomach was almost full of fæcal-looking matters, and also contained the core of an orange and several pips. Heart healthy. Lungs on section fæcal, matter same as found in stomach exuded from small air-tubes, having been drawn into there from vomiting. Parts of lungs were deeply congested; interstitial eccyhmoses. Liver healthy. Gall-bladder distended with thick blackish bile. Kidneys pale, healthy. Bladder distended, containing one pint and a half of urine.

XXVIII.—*Case of Intestinal Obstruction, the result of congenital narrowing of the gut at the seat of departure of a Diverticular Appendage, a persistent omphalo-mesenteric duct. Peritonitis, death.* By REGINALD SOUTHEY, M.D. *Read March* 22, 1872.

SARAH ANNE R., æt. 13½, a tall, thin, very forward girl for her age, was admitted under my care into Luke's Ward on July 12, 1871. She was in a state of collapse and semi-comatose, with contracted pupils. P. 108, T. 96·5°, tongue moist but yellow furred. Her countenance was sunken; her skin cold, and abundantly bedewed with large sweat-drops; from time to time she turned herself in bed, and moaned occasionally. She could be just roused to answer

questions, but no dependence could be placed upon her answers. Her breathing was slow, irregular, and unequal in depth. Her abdomen was greatly distended, anteriorly tympanitic, but dull in both flanks and bulging somewhat, as if from pressure of ascitic fluid. She permitted my placing my hands upon her stomach, and bore my examination of her belly without complaining at all; but her conjunctivæ were almost insensible when touched; her pulse was small and thready; and both from the account I received about her, and her general condition, I gathered that she was deeply under the influence of opium.

The history given me of her illness was this. In the midnight of July 8 and 9, she first complained of sharp pain in her abdomen; towards morning her bowels acted, but the pain was no way relieved. She had some medicine, which she vomited, and the pain increased, so that at times she screamed out. She was reported to have lain with her legs drawn up. Some pills were now given her, and afterwards a hypodermic injection of morphia. This eased her pain for a while. She became wandering and delirious on the 11th, but had passed into a quiet drowsy state on the morning of the 12th, before her removal to the hospital. What quantity of morphia had been administered was not ascertained.

A previous illness she had had was distinctly recorded by her mother. It appeared that four years ago she had been a patient in Elizabeth's Ward on account of obstinate constipation, which yielded, however, to treatment. She was a delicate girl, had always been a remarkably small eater, and latterly had suffered with constant leucorrhœa.

Curiously enough, her family history showed some hereditary proclivity to intestinal disorder, for a sister of hers died in Faith's Ward, at the age of thirteen, with peritonitis, after an illness in which the symptoms had been similar to her own. (No *post-mortem* examination was then allowed.)

I regarded the case one of peritonitis from perforation. The bladder was apparently distended, I therefore directed it to be emptied by catheter. A rectal and vaginal examination was made. The rectum was quite empty; the uterus normal in size and position.

After the bladder had been emptied, a long enema tube was passed into the bowel, and some warm milk-and-water injected. No fæcal matter came away, the tube passed nearly two feet into the colon and met with no resistance.

Her treatment consisted in the sucking of ice, the sipping

of milk with a little brandy in it, unless contra-indicated by exciting vomiting.

July 13.—She was now conscious but also in more pain, being less under the influence of opium; had passed half a pint of urine spontaneously. Nothing had come away from the bowel, but she had vomited once some coffee-ground looking fluid without fæcal odour, but full of blood-cells. P. 144, thready. T. 99·2°. I ordered tinct. opii. ♏xx.; a warm poultice to the abdomen, and iced milk to relieve her thirst. In the evening she vomited again with some violence, throwing up a large quantity of dark-coloured fluid similar to that shown me in the morning. After this she slept.

14.—Face flushed; skin warmer and freely perspiring; tongue inclined to dry. T. 101. P. 144. Bowels acted very slightly; the motion was scanty, pale-coloured and fluid; a very little high-coloured urine was passed. She died at 5 P.M.

Extract from Post Mortem Book (p. 234):—

'Body well nourished, unusually well developed, and large for her age. Heart and pericardium, lungs and pleura were all normal. Peritonitis general. Very little false membrane anywhere. A small quantity of reddish serum in abdominal cavity.

'The small intestine was greatly distended down to a point 18 inches above the iliocœcal valve. This distension in a few places was so great that the mucous membrane of the bowel had split; no sloughs were apparent; contents uniform, pale from fæces. At the spot above mentioned, 18 inches above the valve, the bowel is abruptly constricted to a diameter of about half an inch, and a diverticulum 5 inches long having a calibre just large enough to admit one's little finger, passes from the intestine and is attached at its extremity to the umbilicus. Downwards from the constriction to the iliocœcal valve the intestine was smaller than natural, but contained the same kind of fæcal material as that found in the part above it.

'The obstruction, therefore, was incomplete. But it had been enough.'

XXIX.—*Four Cases of Impassable Stricture.* By W. F. Teevan. *Read March* 22, 1872.

Case I.

W. B., æt. 58, reader, was admitted into St. Peter's Hospital on April 21, 1868.

History.—Has had several attacks of gonorrhœa, the last one about eight years ago. Was treated with medicine only. Three years ago he noticed that his stream of water was getting much smaller, and that he had considerable difficulty in micturition. One year ago an abscess formed in the perineum, and it was shortly followed by another in the scrotum. Both were opened by a surgeon, but neither closed, fistulæ remaining, through which the urine escaped. For the last four months has scarcely been able to make any stream. Is forced to wear a urinal, as the water dribbles away.

Condition on admission.—Is much bent, and very feeble. Suffers greatly from chronic bronchitis. Has lost flesh and strength during the last few months. There is much induration in perineum, where there is a fistula, as also another in the scrotum; the edges of the former are inverted and hard to the touch. Is much troubled with a constant desire to urinate, although the urine continually dribbles away. When the patient was admitted he was put to bed, his bowels kept freely open, and an attempt made to lessen the induration in the perineum by immersing him in a hot hip-bath every night for a quarter of an hour. I had already vainly tried every other day for a fortnight previously to the patient's admission to pass a fine bougie, but hoped finally to succeed by keeping the patient perfectly at rest. In this, however, I was disappointed, for I made six unsuccessful attempts, each of half an hour's duration, to introduce the smallest filiform bougie. The instrument passed for four inches down the urethra, where its progress seemed arrested by a solid wall of induration. Such being the patient's state, I determined, after consulting with my colleague, Mr. Walter Coulson, to perform the old French operation of dividing the diseased structures in the median line without any guide, as none could be passed.

May 7.—A straight staff was passed down the urethra as far as it would go to mark where the stricture began, and having put the left forefinger on the spot, I withdrew the instrument. This point was one inch in front of the fistula in the perineum. I now commenced to cut in the median line, beginning at the spot indicated, and carrying the incision backwards for one inch behind the fistula. A somewhat extensive dissection down to the prostate was required before I could pass a No. 10 silver catheter into the bladder, which was there left for 24 hours; there was but little bleeding.

8.—This morning the catheter was withdrawn. The urine afterwards all passed freely through the wound.

11.—Tried to pass the catheter I had used into the bladder, but failed; something in the prostate seemed to arrest its progress.

12.—Patient was taken very unwell to-day, and on the following became jaundiced. He had not recovered from this attack for many days when he was seized with another on June 1.

June 9.—Patient was now well enough to permit me to attempt to pass an instrument, but I failed in the effort. My treatment from this date was to keep the deep part of the wound open by passing a female catheter every other day into the bladder, introducing it from the perineum, at the same time I also put a catheter down the penile urethra as far as it would go.

17.—To-day the patient left the hospital.

July 8.—I succeeded in passing a No. 6 English elastic catheter into the bladder. From this date I experienced no further trouble. The patient came to me every other day to have an instrument passed, and in a month I had got him up to No. 12 English size. The perineal fistula was healed by the end of the year, but the scrotal one did not close for a year later. The patient comes to me about once in three months to have an instrument passed.

It is now four years ago since I performed the operation, and yet its result has been a perfect success, for the patient can hold his water comfortably for six hours, and passes a large stream. At the present date, May 1872, a No. 18 French=10 English can be introduced into the bladder with ease.

Case II.

C. S., servant, aged 60, was admitted into St. Peter's Hospital on February 11, 1871.

Past history.—Forty years ago had two claps, which were treated with medicine only. Had a gleet on him for a long time, which went away of its own accord. Thirty-six years ago had soft chancres, but they were not followed by constitutional syphilis. Twenty-one years ago Dr. Webb, of Wardour Street removed a fatty tumour from the middle of his perineum about as large as a hen's egg. A fistula remained after the operation which never closed, and much urine escaped through it. He states that eleven years ago he went into the Charing Cross Hospital for extravasation of urine. He suffered much pain at the time, and the penis was greatly swollen. The house-surgeon incised it in several places, but a portion of the glans sloughed away. Was in the hospital for six months, during which period no instrument could be passed into the bladder. Since then all his urine has dribbled away through the fistula. Two months ago he began to suffer much pain whilst urinating, and passed blood during the act.

Present condition.—Patient is naturally a strong man, but is now much exhausted and out of health. Says he has lost about three quarts of blood in the past week. There is considerable destruction of under surface of glans penis. Urethra feels like an iron rod. Perineum greatly indurated, and in its centre a large cicatrix can be seen. There is a fistula in the perineum and another in the scrotum, and all the urine comes through the former. Above the pubes there is a very large abscess.

As soon as the patient came into the hospital I opened the abscess and let out a considerable amount of pus. No bougie could be introduced further than two inches down the urethra, where it got into a very tight funnel-shaped stricture. The treatment I now adopted was as follows: a large bougie was passed down to the stricture and the patient was desired to keep it there for half an hour, gently pressing it against the stricture all the time. The instrument was then withdrawn, and one of the smallest olivary whalebone bougies was passed as far as it would go. By pursuing this treatment every other day, Mr. Sloman, the house-surgeon, managed by the end of March to get completely through the first stricture, which was two inches long, down to the second one in the perineum.

April 8.—Some urine passed through the penis, the first time for ten years.

10.—Mr. Sloman passed a No. 7 French soft bougie into the bladder.

12.—To-day a No. 8 was introduced, and the following day a No. 9 catheter went easily.

15.—To-day the patient is passing more urine through the penis than the fistula. I succeeded in introducing Nos. 10, 11, 12 successively. Two days later No. 12 passed, and as the deeper part of the urethra appeared more dilatable than the anterior, a No. 21 was put in the latter part for three inches.

18.—To-day I introduced a No. 18 and on the 20th the same instrument was passed.

22.—I drew off the urine with a No. 20 catheter, and on the 24th only a No. 18, as patient was very sore after the former instrument. Nearly all the urine now comes by the penis.

May 1.—No. 18. 5.—No. 19.

7.—Patient left the hospital to-day; the induration in the perineum is nearly all gone, and the fistulæ are fast contracting. The patient has, since his departure from the hospital, visited me once a month to have an instrument passed.

February 19.—States that he is quite well, can hold his water as long as he ever did, and that he passes a good stream. Urethra is perfectly water-tight, and takes No. 18 French = 10 English easily.

Case III.

W. C., labourer, æt. 45, was admitted into the West London Hospital on November 10, 1871, for retention of urine. The house-surgeon, Mr. Hill, was unable to pass any instrument, but relieved the patient with a hot bath, and laudanum per rectum.

Past history.—Twenty-five years ago caught a gonorrhœa which degenerated into a gleet lasting one year; the complaint was treated by medicines only. Twenty years ago he began to suffer from increased frequency of micturition, and the size of stream got gradually smaller. Got his first attack of retention eight years ago, for which he called in a surgeon, who could not, however, pass any instrument, but relieved him by a hot bath and some physic. A few years ago he paid three visits to a hospital, but no instrument could be got through the stricture.

Present condition.—He is an active man, of thin, wiry frame. States that he is incapacitated from following his work, as he wants to urinate every ten minutes during the day and every hour during the night.

November 11.—I to-day tried for half an hour to pass various small instruments without success. 15, 18, 22.—I repeated the attempt with no better result, and ascertained that the stricture was a long tunnel one, in the sub-pubic urethra.

25.—To-day six leeches were applied to the perineum; the apertures bled freely for some time. 29.—I again tried, and succeeded in passing No. ¼ silver catheter into the bladder, but only kept it there for a few minutes. December 2.—I failed to introduce the catheter. 6.—2 P.M.—Six leeches were put on to the perineum, and on attempting to pass the catheter two hours later I found that it slipped into the bladder, where I left it for half-an hour only, as the patient could not bear it for a longer period.

December 9.—No. ½ silver passed. 13.—Nos. 6 and 7 elastic French bougies. 16.—No. 8. 21.—Nos. 9 and 10.

The patient left the hospital on December 23. Came to me on December 30, when I could only introduce a No. 9. He states that he can now hold his water for several hours, and passes a fair stream.

January 3, 1872.—Nos. 9 and 10. Jan. 6.—Nos. 11, 12, 13. Has resumed work. Can hold urine for five hours with perfect comfort. Is only troubled twice at night.

10.—No. 14 passed. 13.—No. 15 do. 17.—No. 16 do. 20.—No. 17 do. 24.—No. 18 do. 27.—No. 19. February 10—No. 21. Since that date patient has visited me once a month to have an instrument introduced,

Case IV.

James L., æt. 30, butcher's assistant, was admitted into St. Peter's Hospital, January 15, 1872.

Past history.—When only a few weeks old suffered some impediment to the flow of urine, for which he was circumcised. When ten years old was in Charing Cross Hospital for some obstruction for which instruments were passed. Caught his first clap fourteen years ago, for which he was treated by medicines only; was a long time getting well; had a gleet for one year, which dwindled away of its own accord. Four years ago urine began to pass with difficulty, and only in drops. Went to a hospital, where he was relieved by a hot hip bath every night. Each day instruments were tried to be introduced into the bladder without success. Got double orchitis, and left the hospital, as he refused to take

chloroform. In January 1871 an abscess formed in the perineum, and he afterwards passed as much water through the fistula that resulted as through the penis. In July 1871 he was admitted into the West London Hospital under the care of my colleague, Mr. Bloxam, for extravasation of urine, which was relieved by incisions. No instrument could be passed. A fistula remained in the scrotum. The patient left the hospital in September, in order that he might get a change of air. In November 1871 he was readmitted under my care. I tried many times, without success, to introduce the smallest bougies through the stricture, and as I was unable to make any progress with the case, I advised him to submit to an operation, to which he consented, but bolted from the hospital the day before that fixed for its performance. A few weeks afterwards he wrote to me expressing his regret for his conduct, and asked me to admit him into St. Peter's Hospital, as he was ashamed to show himself at the other hospital. On January 15, 1872, he was admitted into the former institution.

Present condition.—A fortnight ago the urine began to pass per rectum, and but little now comes through the penis. Perineum very indurated; in it are two fistulæ with very thick edges; in the scrotum there is another aperture; the skin around all these openings is adherent, puckered and brawny. Urine contains a small quantity of albumen.

January 22.—3 P.M.—To-day the patient was placed under the influence of chloroform by Dr. O'Farrell. A staff was passed as far as it would go, four inches, and then withdrawn, to ascertain the spot at which the stricture commenced. I now commenced my incision, dividing the structures in the median line from before backwards for two inches. A No. 10 silver catheter was then passed down the urethra by my colleague, Mr. Walter Coulson, and I attempted to pass it into the bladder, but was not able. I then extended my incision backwards to within half an inch of the anus, and commenced a dissection to the prostate. On again attempting to pass the catheter, which was directed by keeping my left forefinger in the rectum and supporting its point, I managed without any further difficulty to pass it into the bladder, and draw off about half a pint of urine. As the operation had occupied some time and a considerable quantity of blood was lost, I left the catheter in the bladder for 24 hours.

23.—Patient has passed a good night. Tongue clean; pulse 112; appetite good.

26.—I passed a No. 7 silver catheter into the bladder with great ease and drew off the urine.

29.—No. 8 silver catheter was introduced to-day.

31.—No. 10 metal catheter passed to-day. Wound looks very healthy. From this date the last instrument was introduced twice a week. At the end of February the patient left the hospital, but the fistulæ were not both healed till the middle of April.

June 5.—Since the last report the patient has visited me once in three weeks to have a No. 10 elastic catheter passed. At the present date the urethra is perfectly water-tight, and the instrument passes into the bladder with the greatest ease.

Remarks on all the cases.—It will be observed that there are two points common to all four cases. Firstly, in each instance the stricture had been caused by attacks of gonorrhœa, and secondly, no injection had been used by any of the patients for the relief of the gonorrhœa or subsequent gleet. This latter fact is not without interest, and I may affirm from my own experience that injections never cause stricture unless, indeed, they are of great strength; but that a strong solution of nitrate of silver may give rise to a bad stricture I have abundant proof, as I have lately had under my care for stricture two patients who never had gonorrhœa, and in whom the disease was caused by an application of a strong solution of caustic for the relief of spermatorrhœa. All the patients, except one, had their strictures complicated with fistulæ, which in course of time all healed up, after I had in each case restored the urethra to its natural calibre. This result accords with my experience, for I have never had to undertake any operative procedure to cure a fistula unless there was actual loss of tissue.

I cannot speak too highly of the value of the whalebone olivary bougie, as with it I succeeded in curing the patient No. 2, after every instrument had failed to effect an entry. The Case 3 was the only one in which I have ever passed a silver catheter after failing to effect the object with filiform and whalebone bougies, inasmuch as these latter are about only one-fourth the size of the smallest metal catheter, and I should have utterly failed in this particular instance, had it not been for the beneficial effects of the leeching, which reduced the congestion and so lessened the pressure caused by an accumulation of blood. I would here wish to confirm the remark of M. Boret, of Tamboff, to the effect that chlo-

roform is useless for the relief of stricture, for if an experienced hand is not able to introduce an instrument, the administration of chloroform will not enable him as it does not reduce *bulk*, whereas leeching and bleeding are most useful, as they lessen *quantity*, and so increase the capacity of the constricted part of the urethra.

Cases 1 and 4 were cured by the old French operation of 'La Boutonnière.' This operation is practically unknown in this country, and English surgeons would have treated these cases either by puncturing the bladder through the rectum in order to give the stricture a rest, and at a later period enable the surgeon to pass an instrument, or else Symes' operation for the relief of impermeable urethra would have been performed. Now my objection to the first operation is that it is often only a makeshift, and sometimes utterly fails in its object, leaving the original complaint untouched, and that some of the worst forms of ulceration of the rectum have been caused by this operation from the irritation of the urine. My objection to Syme's operation is, that it involves the formation of a false passage or a laceration of the urethra. Now, if there is one fact better known than another, it is that the worst form of stricture is the traumatic—that caused by laceration, and hence Symes' operation is opposed to all the teachings of surgery and pathology; it gives a man a worse kind of stricture than he had before, and without commenting upon its risk to life through its liability to cause pyæmia, I may state that it is infinitely inferior in all respects to the old French operation. For the performance of La Boutonnière it is absolutely necessary that the light should be good, and an able assistant at hand; it is an operation not nearly so difficult as some suppose, for as it is now a well-known fact that there can be no stricture in the prostate, we have only to dissect down to that organ to enable a catheter to be passed into the bladder. I have now performed the operation seven times, and in no instance have I failed to reach the bladder. I do not for a moment pretend to have in these cases divided the stricture and that only. What I did was to divide the diseased structures in the median line in the natural course of the urethra, and I have no doubt but that in several cases the urethra was, when restored to its natural calibre, an entirely new canal in the part where the operation was performed.

XXX.—*Paralysis of Left Face, lateral deviation of Eyes to right. Impairment of articulation and deglutition. Loss of sensation in right face. Sudden death. Tumours, probably syphilitic, in pons and medulla oblongata.* By W. H. Broadbent, M.D. *Read April* 12, 1872.

WILLIAM T., æt. 46, was admitted into St. Mary's Hospital under my care, on August 4, 1871. He had been a soldier, and had served twenty years in India, enjoying while there good health, but since his return, four years ago, he had suffered from his liver. He had syphilis in India. On his forearms and legs were numerous large scars, as of rupia; his complexion also was sallow, and his appearance that of syphilitic cachexia.

On June 20, while cutting grass, at 10.30 A.M., the sun being rather powerful, he said the sun struck the left side of his face; he felt queer, did not fall, but had to go indoors, and he was never able to work afterwards. Suffered from pain in the head, giddiness, double vision, and a feeling of coldness down the right side. No vomiting. The face was drawn at the time, but had got worse since.

On admission there was marked loss of power in the *left* side of the face; the wrinkles were smoothed out; the mouth carried to the right; the distortion was always evident, but was worse when he opened the mouth or tried to show the upper teeth. *Both* eyes were closed in the usual winking movements; he could not close the left eye alone. The uvula was drawn to the right, and this side of the palatine arch was lower than the left.

He complained of difficulty in masticating his food. This was referred to the *right* side of the mouth. (No note of condition of masseters and temporals.)

Deglutition was embarrassed. The tongue was protruded straight, but his articulation was thick and indistinct, and the voice had a very nasal twang. There was no difficulty in the articulation of any particular letter as the alphabet was gone through.

He had double vision, especially for distant objects, and a slight want of parallelism between the two eyes was

evident. (In two different observations this was described as internal strabismus of the left eye, and that the right was carried too far outwards.) A more noteworthy fact, however, was that there was lateral deviation of both eyes to the right. He could not bring the left outwards at all beyond the median plane of the orbit; the right he could bring slightly to the inner side of the median plane, but very little.

He said the right hand was dead, but there was no perceptible difference in power between the two hands when they were tested. He used the two legs equally well when in bed, but when made to walk he complained of giddiness, walked slowly, feebly, and unsteadily, staggering mostly to the right.

He complained that when shaving, the *right* side of the face felt like a board, while the left, in which the motor paralysis was present, felt natural, and it was found that a prick or pinch was much less felt on the right than on the left forehead, cheek, and chin.

He said also that he felt less distinctly on the right than the left forearm, but the difference, if real, was very slight.

Smell and taste unimpaired, as also common sensation in tongue; a little deaf in left ear before attack.

Continuous severe pain in head; sometimes all over; sometimes in occipital and frontal region; sometimes in right half. A singing noise also in head. Dozed rather than slept.

Ophthalmoscopic signs negative. No albuminuria. No morbus cordis.

The diagnosis given was syphilitic tumour in pons and medulla.

He remained in the hospital nearly three weeks, taking iodide of potassium in doses gradually increased from six to sixteen grains. The headache was greatly relieved; he walked better and with less staggering, and his articulation was better, but the motor paralysis on the left side of the face, and the loss of sensation over the area of the right fifth remained, as did also the lateral deflection of the eyes.

He insisted on leaving the hospital on August 23. During the night of August 30 he got out of bed to smoke, and was found dead in his chair in the morning. The body was taken to the Marylebone Infirmary, where an inquest was held, and I unfortunately did not hear of his death till the examination had been made. I had the head re-opened, however, and carefully re-inspected the brain.

It was reported to me that the dura mater and arachnoid over the top of the hemispheres were adherent; the dura mater unduly vascular; the arachnoid opaque over the hemispheres, but not at the base. There was fluid in the ventricles, the parietes of which were soft, but apparently only by *post-mortem* change. The only other morbid appearance found was, that when an incision was made along the median line of the pons and medulla two small tumours were seen near the floor of the fourth ventricle. They were described as yellow in colour like a corpus luteum and of firm consistence, and they slipped easily out of the cavities in which they were contained. I did not see the tumours, but in my re-examination of the parts I found one cavity which would have held a pea in the substance of the pons, near the floor of the fourth ventricle, the lower margin of the cavity being well within the lower edge of the pons—the upper not quite reaching the centre of the pons; it was near the median line. Below this, and separated from it by nervous substance, was another somewhat larger cavity in the substance of the medulla, also near the floor of the ventricle. This cavity had not such well-defined walls as the other. A careful examination of both crura and of the hemispheres failed to reveal any other lesion.

There can be no doubt that the lower of these tumours was the cause of the dysphagia and of the sudden death, as it was in close proximity with, and probably involved in a greater or less degree the reflex centres for deglutition, respiration, and the cardiac movements, the nuclei of the glossopharyngeal and vagal nerves. It is unfortunate that I am not able to speak more positively with regard to the absence of other lesions, so as to be in a position to discuss more confidently the relation of the upper tumour to the motor paralysis of the left face and of the eyes, and the loss of sensation in the area of the right trigeminus. If the paralysis of the face and eyes had been due to lesion in the facial nucleus or nerve, and in the sixth nucleus or nerve of the same side, there would have been no difficulty in recognising one or other of the tumours as the probable cause, by involving the common nucleus of the sixth and facial nerves. But both the facial and the ocular paralysis were such as are met with in hemiplegia, and not such as are seen in Bell's paralysis on the one hand, and in lesion of the sixth nerve on the other; the action of the left orbicularis oculi was not affected, and there was lateral deviation of both eyes to the

right, and not simply internal strabismus of the left. The lesion then was either in the right corpus striatum or in the course of the fibres passing from the left facial and sixth nerve nuclei to the right corpus striatum, and almost certainly after their crossing to the right half of the pons.

I have not previously met with lateral deflection of the two eyes, except in hemiplegia, and usually in severe attacks. In my own experience it has commonly been associated with lesion of the anterior part of the corpus striatum externum, and accordingly I examined most carefully these ganglia and the crura cerebri, but without finding any evidence of disease. I am inclined to consider the upper of the two tumours as the cause of the anæsthesia in the right side of the face, by encroaching on the nucleus or fibres of origin of the right trigeminus, and of the left facial and ocular paralysis by cutting across the fibres between the common nucleus of these nerves and the right corpus striatum just as these fibres crossed the median line. I am the more disposed to take this view on account of the persistence of the lateral deviation of the eyes, this being usually a fugitive condition when it is due to lesion in the corpus striatum, the reason for which I have explained elsewhere. It must not be supposed that I have forgotten the apparent paralysis of the right internal rectus. This muscle is associated with and led by the external rectus of the opposite side, and the portion of the nucleus of the third nerve from which it is supplied, is associated with and subordinated to the nucleus of the sixth. No other branch of either third nerve was affected.

XXXI.—*Spontaneous Gangrene of both Feet in a Boy, arising from disease of the heart. Double amputation. Recovery from operations. Death from cardiac and pulmonary conditions.* By F. J. Gant. *Read April* 12, 1872.

In bringing before this Society the following remarkable case, I think its clinical interest will be found to consist no less in its physiological significance than in its patho-

logical character, and that the phenomena exhibited well illustrate the suggestiveness of pathology in relation to physiology. The operations performed under the circumstances narrated, have some surgical importance specially.

John M., æt. 16, a messenger-boy. When about seven years old, it was first noticed that he had a decidedly blueish appearance, was always breathless, and complained of feeling cold even in warm weather. The boy himself states that he has suffered from shortness of breath, with occasional attacks of severe dyspnœa, ever since he can remember; and that during the last few years he has also been troubled with a cough and pain in his left side. These conditions as to the circulation, systemic and pulmonary, the respiration and apparent temperature, have been persistent, otherwise the boy's general health has remained unaffected. Latterly he has been much exposed to cold, by standing at a shop door while the weather was very severe. Under these circumstances his toes and legs up to the knees were often benumbed for hours, so that he could scarcely feel the ground with his feet, although he could stand and walk tolerably well. At length, after a day's exposure, during the night when in bed, his feet 'burned very much,' and the next morning on waking—for he slept soundly—the great toe and two adjacent toes of both feet were nearly black, and quite insensible. Nevertheless, in this state he walked to the Royal Free Hospital.

On admission, January 30, 1871, I found the following conditions, local and general, notes of which were carefully taken by Mr. T. C. Murphy, senior house-surgeon. On both feet all the toes, and about half the adjoining portion of the dorsum, were quite black, cold, and insensible. A dark-red halo, half an inch in width, defined the gangrenous part; but a livid blueness, with mottled veins, extended up the legs to the knees, accompanied with some coldness, insensibility, and tendency to œdema. This state of the limbs above the seat of gangrene contrasted with the pale, shrunken condition of the legs in senile gangrene of the feet, and the gangrene itself, at this early stage, had more of a succulent or moist than of a dry character. Pulsation also was quite free in both the tibial arteries of either foot. A similar venous appearance and cold insensitive state of the skin were noticeable over the surface of the body generally, that of the hands and cheeks in particular, thus presenting other diagnostic features. The patient's expression

was anxious and old-looking, like the aspect of countenance seen in children suffering from chronic albuminuria. He was lethargic, dull of understanding, and slow of speech, with a stridulous voice, and a sort of shivering, broken articulation.

Physical Examination of the Chest by my colleague, Dr. Cockle.—The heart's action was feeble but regular, and unaccompanied by any appreciable murmur in any situation. Pulsation was visible in both carotid arteries in the neck, and a diffused forcible pulsation in the external jugular veins was even more observable. Emphysema and slight bronchitis at the bases of both lungs were the only pulmonary signs. Respiration oppressed, 16 per minute, and tolerably regular, with an occasional cough and slight expectoration. Pulse 108, small, feeble, and somewhat irregular. Temperature, taken by the clinical thermometer, in the axilla, morning, 103·8°; evening, 101·6°. Urine scanty and high-coloured, with a copious deposit of thick, greyish-brown lithates, and albumen present to the amount of a third in any given quantity of urine. The gastro-intestinal functions were apparently healthy, although the tongue was furred, and the appetite for any food very indifferent. No sign of jaundice could be discovered, either in the state of the urine or fæces, or by discolouration of the skin or of the conjunctivæ.

Treatment.—Consisted primarily, in endeavouring to promote the local and general circulation, and thus limit the gangrene of the feet; secondarily, in the removal of the gangrenous portions, when the line of demarcation had taken place, and guided by its limitations. Accordingly both feet and legs were wrapped in wadding, and stimulants administered with food, as both could be taken. At the same time, expectorant medicines were ordered as occasion required, and blisters applied to the loins to relieve, if possible, the albuminuria.

February 4.—Five days after admission. The redness on the dorsum of the feet had become more circumscribed, and the line of demarcation had commenced. All the toes were quite black or sphacelated, and insensible when punctured deeply with a pin. On the 7th, an ulcerative line of separation had formed over the dorsum and under the soles of the feet to the depth of one-eighth of an inch, and which on the living side of the textures exhibited a retracted, healthy, granulating margin. Simultaneously, the pulse had improved in force and volume, and had fallen to 90. The

general lividity of the surface was exchanged for a pinkish hue, the cheeks especially having assumed almost a ruddy and healthy appearance. Respiration remained unaltered in its rate of frequency, 16 per minute, but the breathing was comparatively easy, and the cough less troublesome. The temperature varied but little from its former standard, 101. The cerebral functions exhibited marked signs of improvement, the patient having become quite conscious, rational, and cheerful, although he still retained the same vacant or silly and dreamy look. He took food well, eating meat, bread, and eggs daily, and drinking wine, brandy, and milk. The urine had ceased to deposit lithates, and albumen had entirely disappeared. Blisters over the lumbar region, as already noticed, had risen and discharged freely.

In the course of this functional restoration, which with fluctuations was maintained for some time, certain pathological conditions of noteworthy importance occurred. They were referable principally to the heart's action and the circulation, to the respiration, and to the brain. Thus, occasionally the heart's action became very feeble, so that its impulse was scarcely perceptible; and the pulse at the wrist became thread-like in force and volume, but retained its frequency, even to 108 per minute. Violent attacks of dyspnœa, threatening instant suffocation, occurred at intervals; and in conjunction with these failures of the circulation. On these occasions the general lividity of the surface of the body was proportionately reassumed. Fits, so to speak, of great mental obscurity, and sometimes entire loss of consciousness, were not unfrequent; and on one occasion epileptic fits occurred, the convulsive movements chiefly affecting the upper extremities and the facial muscles, and unconsciousness continuing for two hours. The amount of lithates and albumen in the urine varied from time to time, without any constant relation to the other symptoms, or there being any notable proportion in the relative quantity of these constituents as deposited. Lastly, no food could be swallowed apparently at times, and the patient had great difficulty in opening his mouth, so that the power of deglutition seemed to be much impaired or wanting, with inability also to depress the lower jaw; but there were no accompanying tetanic symptoms. During the period when the gangrene of both feet was becoming limited and circumscribed by the formation of a line of demarcation, it was important to observe that nourishment was supplied almost entirely

by enemata, consisting of eggs, milk, and wine, injected about every three hours in the day and night.

18th.—At length the line of ulcerative separation between the living and dead parts of the feet had deepened down to the bones, as represented in the figure, and then, choosing

also the most favourable constitutional opportunity, I proceeded to remove the sphacelated portions by modifications of Hey's and Chopart's amputations. The patient was easily brought under the influence of chloroform, and without any unfavourable symptom. On the right foot, the first and fifth metatarsal bones were entirely removed, and the remaining bones were sawn across just in front of their bases; the exposed cartilaginous surfaces of the internal cuneiform and cuboid bones were excised with cutting-pliers. Only one or two arteries required torsion. The flaps were placed together and closed by silk sutures. On the left foot, amputation was performed further back, so as to include the anterior half of the three cuneiform and cuboid bones, with all the metatarsal bones. Hæmorrhage was readily arrested, and the flaps closed by sutures. The stumps were dressed with lint soaked in carbolic-acid lotion, one part to forty of water.

After these operations, no locally unfavourable symptom occurred, excepting in the left stump from whence on the

fourth day an erysipelatous blush extended up the leg to above the knee. This part was dressed with a creosote lotion, and the blush disappeared in a few days. The incisions of both stumps healed entirely by primary union, excepting the outer portion of the right or non-erysipelatous stump, which healed by granulation. Both stumps had united soundly in the course of seven days, by February 27. (Casts exhibited.) But during this period the previous symptoms of venous circulation, with dyspnœa and cerebral disturbance or obscurity, recurred at irregular intervals.

March 6.—The action of the heart was laboured, and the impulse heaving. No appreciable murmur, nor pericardiac friction-sound. The cough had returned, and accompanied with thick mucous expectoration, and large loose rhonchus about the bases of both lungs. No pleuritic friction-sound could be discovered. Temperature 101. Severe attacks of dyspnœa ensued. The urine again became albuminous, and the face puffy. Drowsiness and deafness supervened, gradually passing into complete unconsciousness, while the general lividity and coldness of the surface returned. The patient having continued in this state for six days without any reaction, at length died quietly.

Post-mortem examination.—On removing the sternum and cartilages of the ribs, and laying open the pericardium, certain appearances *in situ* first attracted attention. The internal surface of the pericardial sac, both on its parietal and cardiac reflection, was overspread with a thin film of yellow plastic lymph, and the sac contained about a tablespoonful of the ordinary serous fluid. The right half of the heart, auricle and ventricle, was considerably enlarged, the organ laying as much to the right of the middle line as to the left. Both venæ cavæ, superior and inferior, and the pulmonary artery, were much distended. Having detached the heart and laid open the right auricle and ventricle, the following structural conditions were discovered. The auricular cavity was dilated and engorged with blood to twice its natural size. The wall of the auricle was not thicker than in the healthy state, and, indeed, between the musculi pectinati its substance was only membranous. The foramen ovale was entirely closed. The right ventricular cavity was also enlarged, though to a less extent, and equally distended with venous blood. But the wall of the ventricle, like that of the auricle, had not undergone any apparent hypertrophy. The right auriculo-ventricular opening was much enlarged, so as easily to admit two or

even three fingers across the knuckles. No change had taken place in the tricuspid valve, the three segments of which, although of rather large size, were healthy. The pulmonary semi-lunar valves were also quite normal, presenting no thickening, opacity, or mark of any degeneration. In the left half of the heart no morbid condition was discovered, as regards either the auricle or the ventricle, relative to the size of its cavity, the substance of the walls, or the state of the valves, mitral, and aortic semi-lunar.

The coats of the aorta were free from any marks of degeneration, atheromatous or calcareous. The ductus arteriosus was obliterated. The heart weighed half a pound, or eight ounces. (Organ exhibited.)

I have been favoured by Dr. Peacock with the following description of the state of the heart: 'The heart, when recent, was probably larger than it should be. It now, after being some time in spirit, weighs 8½ ozs., but the enlargement is due to dilatation rather than to hypertrophy. The muscular walls are flabby, and both the cavities and orifices are dilated; the right auricle and ventricle being especially large, and the corresponding auriculo-ventricular valves probably incompetent. From the arterial apertures having been cut open, it is impossible accurately to estimate their relations to the other openings, which I have measured by balls passed through them, in my usual way. The dimensions, measured in the two ways, are, however, as follows:—

'Circumference of right aur. ventr. aperture 54 French lines, =121·5 mm., and 4·79 English inches. Pulmonic apert. 31 F. l. = 69·75 mm. and 2·74 E. i. Left aur. ventr. apert. 48 F. l = 108 mm. and 4·2 E. i. Aortic aperture, 26 F. l.= 58·5 mm. and 2·3 E. i.'

Passing on to the pleura and lungs, both pleural cavities were covered with a thin layer of recently effused plastic lymph, similar to that which lined the cavity of the pericardium. Both lungs were emphysematous, the texture of other parts was darkly congested, and the bases were almost consolidated; the bronchial tubes, even to their finest divisions, were engorged with frothy mucus, and the mucous membrane exhibited a congestive, inflammatory appearance.

The abdominal viscera, generally, were much congested and enlarged by interstitial deposit, passing into fatty degeneration. Thus, the liver had a deep purple colour, and section showed intense hepatic congestion; the organ was considerably increased in size, its substance soft, and loaded

with intralobular deposit. The kidneys also were equally congested, of a dark purple colour; and the cortical substance was nearly double its usual thickness, and softened by an abundant pale, fatty deposit. The spleen had undergone great enlargement, and its texture was very friable.

Lastly, the brain was structurally healthy, but exhibited marked venous congestion in the vessels of the pia mater and choroid plexuses.

Two conclusions may, I think, be drawn from the history of this remarkable case—the one respecting the cause of gangrene, the other as to the cause of death. Firstly, it would appear that the gangrene of both feet, depending evidently on systemic venous congestion, was caused by the enlarged state of the auriclo-ventricular opening, and the accompanying dilatation of the auricle, and of the ventricle in a lesser degree, on the right side of the heart; that the gangrene induced was essentially *cardiac*, although the immediate and existing cause may have been exposure to cold. Secondly, that the immediate cause of death was pericarditis, pleurisy, and more particularly capillary bronchitis.

I have already noticed the interesting surgical features in the course of this case; principally the double amputation by modifications of Hey's and Chopart's operations, in consequence of spontaneous gangrene of both feet occurring at an early period of life from heart disease, and the speedy recovery with sound stumps after these operations had been performed under apparently the most adverse circumstances.

XXXII.—*Aneurism of the ascending portion and arch of the Aorta, treated by Ligature of the left Carotid Artery.* By John Cockle, M.D. Communicated by Christopher Heath. *Read April* 12, 1872.

CLINICAL experience shows the opportunities of watching cases of aortic aneurism, with external pulsating tumour, to a period of cure, to be exceedingly rare, if indeed they are ever really recorded. Hence the requisite precision is wanting as to what might constitute a radical cure in such cases.

Where no manifest symptoms exist, the mere subsidence of an external pulsating tumour is certainly no safe criterion, as this result is not infrequent while the disease still fatally advances within. When, however, external tumour and symptoms co-exist, and both undergo gradual and simultaneous diminution, there would arise a rational warrantry for the belief that curative changes were probably in progress.

Such result occurred in the following case, where, in consequence of the gradual increase of the tumour, rupture of the sac seemed imminent, and for the prevention of which, ligature of the left carotid artery was performed by Mr. Heath in accordance with the plan suggested by the author of this report in a paper published in the 'Lancet' of 1869.

William J., æt. 48, a married farm labourer of temperate habits, came under the author's care the latter end of January 1872 with the following history. His father died of rheumatic fever, æt. 45. His mother died twenty years ago from a tumour in the side. Five brothers and two sisters are still living. He has suffered, he thinks, for four or five years from pain in the right side of the head, neck, shoulder, and chest, which he thought arose from rheumatism. The pain came on and was much increased during work, and continued all night, almost completely preventing sleep. When not at work he was tolerably free from pain. He does not remember to have met with any injury of the part. In April 1871 he accidentally detected a beating swelling in the hollow of the neck, for which he consulted the local practitioner, Dr. Trimmer. Subsequently he was admitted into Addenbrooke's Hospital, Cambridge, where he remained for a period of two months, and after leaving the hospital went occasionally to see Mr. Humphry, up to the end of August. After Christmas 1871 he was compelled to give up all work from the increasing pain in the parts before named.

When first seen by Dr. Cockle the following points were noted. Face florid, left pupil considerably dilated, eye much congested, with copious mucous discharge; vision not much impaired. When perfectly quiet, he does not suffer much; but on exertion complains of shortness of breath, palpitation and pain. He has no cough, and swallows without difficulty. The radial pulse is soft, regular, and compressible, of normal range about 75, but very decidedly weaker in the left wrist. The sphygmographic tracings which were exhibited were taken by Dr. Anstie.

The temporal, left carotid, and left subclavian arteries are regular, and beat synchronously with those of the opposite side, but seemingly weaker to a slight extent. There is marked displacement of the right sterno-clavicular articulation with projection of the right and upper portion of the sternum. The swelling extends into and fills the episternal notch. It is strongly heaving and expansile, of pyramidal shape, extending upwards towards the right side of the neck to the extent of one inch and a half; the right jugular vein, turgid, courses along its right boundary. No other sign of venous distension exists. The right triangle of the neck is hollower than that of the corresponding side. Over the upper portion of the sternum and to its right side, to about two-and-a-half inches below the inner half of the right clavicle, a strong heaving impulse is felt; beyond the left upper portion of the sternum the impulse is still to be detected, although greatly weakened. No thrill is to be felt over any portion of the area of impulse. This site is everywhere dull to percussion. Auscultation detects no murmur, or but the faintest; a double concussion shock is felt, the first nearly toneless, the second with almost musical boom. The respiratory murmur is feeble, or absent over upper portion of right lung. The cardiac impulse is abrupt and very heaving, but without thrill; it is nearly synchronous with the radial and carotid pulse. The area of percussion dullness is increased, extending one and a half inches to the left of the left nipple, where the apex beat is felt. The cardiac sounds are, here, dull and muffled, but without appreciable murmur. At a point midway between the left nipple and the upper impulse of the sac at the left of the manubrium sterni, the cardiac sounds are nearly normal.

The left carotid artery above the omo-hyoid was tied by Mr. Heath on February 26, 1872, at 1.30 P.M., present, Messrs. Erichsen, T. Holmes, Lewellyn Williams, Marsden, Murphy and Cockle. Carbolised catgut ligature was employed. No constitutional disturbance whatever followed. Within forty-eight hours the patient could lie and sleep upon his right side, which he had been unable to do for months in consequence of the distressing pain thereby occasioned. A day or two later, the left pupil had returned to its normal size; the congestion of the conjunctiva and the mucous discharge had almost completely disappeared. On March 4 (eighth day from the operation) the cotton-wool dressing was removed for the first time.

The wound had perfectly healed by the first intention. The sterno-clavicular articulation and upper portion of sternum much less prominent, and the impulse of the sac lessened. March 7 the case was seen by Drs. Stokes, of Dublin, Sibson and Anstie. The latter again took a sphygmographic tracing. Dr. Stokes expressed his opinion that the aneurism was receding. Since the operation, the case has undergone still further improvement; the right upper chest wall has become much flatter, and the heaving impulse there before existing, greatly diminished. The cervical tumour, together with the impulse, is also much less; indeed, during the intervals of meals it is scarcely preceptible; just after eating, impulse is still to be detected. The patient is free from all subjective phenomena. The right sterno-clavicular articulation and the sternum have nearly receded to their normal position, slight want of symmetry being alone visible.

Such is the history of the case to the present time. Mindful of its details, it will not be denied that by the ligature of the left common carotid artery, remarkable results have been achieved. How the occlusion of the artery tends to check the progress of an aneurism, whether by causing some 'diversion' of the blood-current, or change in the lining membrane of the sac, are points respecting which no explanation is here attempted. To submit the case as one of cured aortic aneurism, would be assuredly a premature, possibly a false, position to assume. A wider experience is required to determine whether in a case of aortic aneurism rapidly increasing and uninfluenced by medicine, such a procedure as ligature of the carotid artery is destined to find a place among the resources of our art.

Postscript.—July 1872. The patient has continued to improve, and has walked as much as *fourteen* miles in one day. He was shown at the Royal College of Surgeons on June 7 in a highly satisfactory condition, and his case is commented on in Mr. Holmes' lecture on 'Aneurism' of that date (v. 'Lancet,' July 1872).

XXXIII. *Case of Diphtheria followed by Paralysis.* By Edward Headlam Greenhow, M.D. *Read April* 26, 1872.

WALTER W., æt. 32, by occupation a brass-finisher, was admitted into the Middlesex Hospital, May 27, 1871.

Previous history.—Had always been a healthy man, and had only felt unwell for three days before his admission, when he had become feverish and had suffered from sore-throat and difficulty in swallowing. At first only the right side of the throat had been affected, but after a day or two the right side had got well and the left had become sore.

State on admission.—Patient had a very anxious expression, and suffered from occasional paroxysms of coughing, attended by considerable dyspnœa. Was unable to lie down and constantly sat up in bed. There was a hard tender swelling on the left side of the neck beneath the angle of the lower jaw, which patient said had appeared only the day before. On looking into the throat, the whole soft palate was seen to be deeply injected and somewhat œdematous. At the base of the uvula there was an ash-coloured exudation of the size of a shilling, and two similar but smaller ones on the left pillars of the fauces at their junction with the *velum palati.* The heart-sounds were healthy, impulse feeble; the breath-sounds normal. Pulse 78, respirations 26, temperature 100°. Urine, sp. gr. 1030, contained a trace of albumen and threw down on cooling a copious deposit of lithates. Patient was ordered to have his throat sprayed with a weak solution of carbolic acid four or five times a day, and to take a mixture containing chlorate of potash and tincture of perchloride of iron every six hours. He was at the same time placed upon an ample diet of beef-tea, milk and eggs, with three ounces of brandy and six of port wine, to be given at regular intervals during the twenty-four hours.

Progress of case.—June 1.—Voice hoarse, and patient drank with much difficulty, being obliged to incline his head towards the right, in order to let the fluid pass down the right side of the fauces only. When he attempted to drink without this precaution the fluid returned through his nose. The whole of the fauces and the soft palate were injected; the patch of exudation at the base of the uvula had come away,

leaving a red surface undistinguishable from the surrounding parts; the left tonsil and pillar of the fauces were covered with a grey-coloured exudation, and the enlarged glands beneath the lower jaw on the left side remained as before. The pupil of the left eye was rather larger than that of the right, and acted somewhat sluggishly under the influence of light. Pulse 78, small and compressible; temperature 100·6°; urine, sp. gr. 1020, shewed a fourth of albumen after being boiled and treated with nitric acid.

2.—Had passed a restless night, and sweated profusely. There was now complete aphonia, and the difficulty of swallowing had greatly increased. Still much tenderness of the enlarged glands, and also pain on the left side of the neck, increased by pressure, and extending downwards towards the clavicle. Pulse 76, of fair volume and strength; respirations 20; temperature 100·4°.

3.—Patient brought up last evening, after the use of the carbolic acid spray, a piece of exudation which, under the microscope, was seen to consist of a slightly-fibrillated structure intermixed with much granular exudation. Condition of throat improved. Pulse 64; respirations 16; temperature 99·4°; urine acid, sp. gr. 1030, still contained by measure one-fourth of albumen. In the evening of this day the pulse fell to 58 and the temperature to 98·4°.

4.—Voice returning; swelling and tenderness at left angle of lower jaw much decreased; throat much improved; solids swallowed with ease and liquids without any tendency to regurgitation. Pulse 60, regular and of good volume, but very compressible; respirations 20: temperature 98·4°.

10.—Pupils large, and sluggish under the stimulus of light. Liquids were swallowed freely, but patient complained of difficulty in swallowing solids, which appeared to lodge at the entrance to the œsophagus until washed down with fluid. Still a little swelling and tenderness remaining at the left angle of the lower jaw. Pulse 56; respirations 16; temperature 98°; urine sp. gr. 1017, free from albumen. He was ordered a draught to be taken three times a day, containing fifteen minims of tincture of perchloride of iron, three minims of solution of strychnia, and five minims of spirit of chloroform.

27.—Voice had a nasal twang. There was still difficulty in swallowing solids, and unless taken carefully, fluids would occasionally return through the nostrils. The left side of the soft palate appeared to be flaccid and pendulous, and

moved much less than the right side when the patient articulated the word ah! The power of vision was slightly impaired, so that he could only see to read for a few minutes at a time. Urine sp. gr. 1010, acid, free from albumen. He was discharged this day at his own desire, but was advised to attend the hospital as an out-patient.

He presented himself on July 1, looking pallid and thin. His voice was more nasal in character, and the velum continued flaccid and pendulous, but almost equally so on both sides. Fluids were still apt to return through the nostrils, and solids to stick on the right side of the gullet until washed down with drink. Pupils normal, but the sight became confused after using the eyes for a few minutes. He complained of numbness and pricking in the tips of the fingers, and also of a feeling of numbness and scalding at the tip of the tongue, which he said had commenced before he left the hospital, though he forbore to speak of it. The affection of the fingers came on later, having commenced in those of the right hand first, and only this day having appeared in those of the left.

July 11.—The voice retained its nasal character, and the difficulty in swallowing solids continued, as well as occasional regurgitation of fluids through the nostrils. Patient was slightly deaf, and complained of pain in the left ear, and also in the left side of the neck, especially on attempting to turn his head. The numbness and pricking of the fingers continued, and had extended to the palms. Two days before, the toes had been attacked by the same feelings, which now affected both feet as far as the middle, but were worst in the right foot.

29.—Voice almost normal; no longer any regurgitation of fluids, and solids could be swallowed with comparative ease. Patient walked very unsteadily and with a staggering gait, which was much aggravated when he tried to walk with his eyes shut. When desired to pick up a pin from the table, he only succeeded in doing so after many awkward attempts, and soon let it drop, saying that he could not tell whether he kept hold of it or not unless he saw it. Ordinary sensation seemed to be rather exaggerated, for he felt the prick of a pin on his limbs most acutely. Tactile sensation in lips and tongue appeared to be normal. Patient stated that, except for the daily increasing loss of power in legs and arms, he felt quite well, ate and slept well, and had perfect control over the sphincters.

August 9.—Was re-admitted into the hospital. Voice still slightly nasal; aspect somewhat anæmic; muscular development good. He complained of a painful feeling as of pricking with pins and needles in the legs as high as the knees, and in the hands and forearms up to the elbows. The grasping power of the hands, and especially of the right hand, was much impaired; the muscles of the palms and fingers slightly emaciated. He could extend the fingers of the right hand, but could not flex them perfectly. Handled things in a fumbling manner, and could not tell whether he had hold of his walking-stick unless he looked at it, so that when his attention was distracted he several times let it fall out of his hands. Said that his hands felt numb as high as the wrists, and that touching the hands produced an exquisitely painful pricking sensation in the neighbourhood of the part touched. Muscles of feet somewhat emaciated, but otherwise muscular development of lower limbs good. He could move the toes of both feet, and could move the left foot quite freely at the instep, but not the right. Experienced the same sensations of pricking and hyperæsthesia when his feet and the lower parts of his legs were touched as has been described respecting the hands; in the soles of the feet the hyperæsthesia was extreme, even a light touch causing severe pain. He could stand just for a moment without support, but very unsteadily. Could walk in a staggering way with the aid of a stick, but in doing so brought his heels forcibly down, and kept his eyes fixed on the ground to see where he placed his feet. Was unable to walk with his eyes shut. Faradization applied to both upper and lower limbs produced no effect on some muscles, whilst in other muscles of the same limb, it caused violent contraction and severe pain. These effects followed its application to the ulnar sides of the arms, and to the outer borders of the feet.

18.—Patient said he felt weaker, and had increased numbness of hands, so that he could scarcely grasp at all with the right hand, and very feebly with the left. He was unable to keep hold of anything when his eyes were shut, was not aware when a large pocket lens was put into his hand; and, when told he had hold of something, could form no idea of its size or shape. Could not flex the fingers of either hand into the palm; but could raise his hand to the crown of his head slowly and with much difficulty, and could raise himself from the recumbent position with the assistance of his elbows.

There was still some hyperæsthesia of the left palm and wrist,

though less marked than on admission; no hyperæsthesia of right hand, but the sensation of pricking in both hands and forearms continued. Patient could now scarcely stand without assistance, and on attempting to move forward by shuffling his legs along the floor, tottered, and would have fallen down unless he had been supported. Complained of a sensation of pricking in the legs and feet when they were touched. Reflex irritability of soles much exaggerated. Considerable tenderness was felt on pressure over the right brachial plexus, and also over the main nerves of both the upper and lower limbs.

21.—The pricking sensation extended as high as the middle of the forearms when the skin was lightly scratched. Great tenderness was elicited by pressure over the nerves of the extremities, care being taken to press only over those parts where neighbouring muscles could be avoided. Thus firm pressure over the radial nerve above its division caused acute pain; pressure in the neighbourhood caused only a sensation of pricking. The ulnar nerve was exquisitely tender where it passes over the inner condyle, as was also the median nerve at the bend of the elbow. Firm pressure repeatedly made on either side of the nerve elicited no pain, but the moment the fingers were brought directly over the nerve and pressure exerted, the pain was so intense that the patient screamed out. The crural nerve was in like manner exquisitely painful under pressure just where it emerges from below Poupart's ligament, and the popliteal nerve where it passes over the head of the fibula. No pain was experienced from pressing or pinching the muscles of the thigh in the vicinity of the crural nerve, but the moment pressure was exerted over the nerve itself, the man uttered an exclamation of pain, and his face flushed. This experiment was repeated several times with the same result.

From this date he gradually but slowly improved. On September 2 he was able to walk the length of the ward with assistance. The grasping power of his hands was increased, although still feeble, and he could pick up small objects with his fingers. The tenderness on pressure over the nerves described above was diminishing, but still considerable, and there still remained sensations of pricking and numbness in the extremities and in the lower parts of all the limbs.

He was discharged early in October, but continued to attend as an out-patient, and did not finally lose the feeling of numbness in the hands until the beginning of March 1872.

Remarks.—The points of the foregoing case which have been my chief inducements for bringing it under the notice of the Society, are the very marked and extraordinary tenderness produced by pressure over the nerves of the paralysed limbs, and the diminished frequency of pulse which occurred just when the local throat symptoms decidedly began to subside. In a paper on 'Diphtherial Nerve Affections,' published in the 'Edinburgh Medical Journal' in the year 1863, I mentioned that I had in several instances observed the existence of tenderness on pressure over some of the chief nerves of the affected limbs; a fact which I have also verified on numerous subsequent occasions. In the present case, however, the tenderness was more intense and general than in any of the previous cases which have come under my observation, and it was thoroughly ascertained by most careful experiments that the seat of the tenderness was really in the nerves themselves, and not in the adjacent muscles.

In my comments on a case published in the fourth volume of the Transactions of this Society, I expressed the opinion that the pain produced in these cases by pressure over the nerves is due to neuritis, an opinion which the facts of the present case seem to me to corroborate, though as yet the pathological causes of the neuritis are altogether obscure.

The slowness of pulse which set in about the seventh day of the illness, when the throat affection was already subsiding, is another symptom which has been observed in many cases, and in several of those I have seen the pulse has become slower and slower from day to day, until at length the patient has died, apparently from failure of the heart's action. The proper treatment for this symptom is undoubtedly that which was adopted in the present case, namely, that of keeping the patient in the recumbent position without even allowing him to raise his head, and at the same time giving him a liberal supply of liquid food and stimulants at frequent and regular intervals.

It is not, perhaps, unimportant to note that the pain and tenderness on pressure over the space comprised between the sterno-cleido, mastoid, and trapezius muscles on the left side of the neck nearly coincided in time and duration with the existence of the slowness of pulse.

XXXIV.—*Case of Lepra Anæsthetica.* By F. E. Anstie, M.D. *Read April* 26, 1872.

R. E. W., æt. 29, unmarried, a civil engineer by profession, has lived in India, with but one interval, for the last eleven years. He was always healthy till he got fever and ague in 1867, after a long period of exposure to malarial influences and to bad weather, and great privation and hardship in regard to food and lodging. He seemed to recover well from the intermittent fever. In May 1870 he began to notice a numb sensation in the hypothenar muscles of the right hand, and upon this followed wasting of those muscles, and also of the interossei, and to some extent of the hand generally. Gradually the third and fourth fingers became rigidly flexed upon the hand.

It was now for the first time that he began to think about an eruption on the skin which had, in fact, existed almost ever since the attack of fever in 1867. It first showed itself as a light-brown patch on the outer side of the left forearm. Subsequently, similar patches were developed on the right leg and right forearm. He remembered now, that quite from an early period of their existence, the skin in the centre of these patches, especially on the leg, had been numb to the touch. When he was in England in 1869, he showed these patches to a physician, who, however, made no particular remark on them, and did not indicate any doubt about his fitness to return to duty in India. On his return to India, the surgeon of the railway company by which he was employed, examined the patches, which were now extending. It was immediately after this that the wasting of the hand-muscles began, and the surgeon, Dr. Eccles, of Bombay, immediately had his suspicions as to the real nature of the case aroused. The patient now went up the country, and while there he was obliged to call in a medical man, on account of a swelling inside the arm and above the elbow, which was already some size when he first noticed it, and was now become very painful and tender; leeches were applied, and subsequently blisters. By these means he obtained some relief from the local distress, and also from the sharp pains that had begun to shoot down the forearm in the course of the ulnar nerve. His then medical attendant entertained

the theory of syphilis, although the patient felt confident that he had never had anything of the kind. This surgeon gave him both mercury and iodide of potash, but without the least benefit. In February 1871 he again saw Dr. Eccles, of Bombay, who considered it a case of undoubted anæsthetic leprosy, with probably a very melancholy prospect in the future. The patient returned to England, and in July consulted me.

At his first visit I was struck with the patient's air of profound depression, which was more than could well be accounted for by mere low spirits about his prospects; indeed, he had not been told the real nature of his complaint. His voice was slightly hoarse, though the hoarseness was scarcely characteristic; his complexion very sallow. His face was free from spots, and there was only one small one on the body. On the right forearm was an enormous patch, light-brown in colour at the margin, and somewhat silvery-white (but without scales) in the centre. It covered the whole front of the forearm. Another patch was on the wrist and on part of the hand. On the left forearm there was a small similar patch; on the right leg there was a very large and also a smaller patch. All these patches presented the anæsthesia of the central parts in a very marked degree. The muscular wasting of the right hand was such as I have described; there was also a good deal of wasting of the extensors and peronei of the right leg. The ulnar nerve above the elbow, and the peroneal nerve behind the fibula, were felt to be enormously thickened, standing out like small ropes; pressure on these parts sent shooting pain down the arm and the leg respectively.

Naturally the diagnosis of leprosy occurred to my mind, but I had never had a regular case of the tropical leprosy under my own care, and as I was not positive that the disease might not be syphilitic, I preferred to call in the opinion of Dr. Tilbury Fox, who is, of course, familiar with all forms of syphilis, and has also seen much leprosy. He pronounced it to be an undoubted case of anæsthetic leprosy, though not of the most severe character; gave a doubtful prognosis as to the patient ever improving so much as to be able to go back to his usual employment, and recommended the free and persistent use of quinine. I entirely coincided with his way of looking at the matter, but determined not only to give the quinine, but also to give cod-liver oil, and to commence faradising the affected limbs; viz., the

skin-patches, and those of the wasted muscles which were not altogether gone beyond hope.

The result of this treatment was very remarkable, and certainly quite unexpected by me. The patient only took the quinine for a short time, but he steadfastly continued the cod-liver oil during the whole autumn and winter. He procured a proper faradising machine, which I taught him to apply, and used it daily for several months. The secondary current, with dry conductors, was applied to the anæsthetic patches, and the primary current to the wasted interossei and thumb-muscles. Not much progress was made during the first month or two, although the patient easily familiarised himself with the use of the instrument, and the muscles were irritable to the faradic current. But the most marked improvement ultimately ensued; and in February last I had the pleasure of showing the patient to Dr. Tilbury Fox and to Dr. Buzzard, who are able to speak to the condition in which he then was. The alterations were very striking. Nearly the whole of the large patch on the right forearm had disappeared, and the sensation of the skin was greatly restored. Similar improvement, though not quite so marked, was to be noted in the patches on the left forearm and the right leg. The interossei muscles and the thumb-muscles of the right hand had almost completely recovered their natural size and power. The muscles of the right leg had decidedly increased in bulk, and the patient walked very much more easily. The state of his general health had also most remarkably improved; he was rosy and cheerful, and had gained much both in flesh and in general muscular power. He was in fact quite fit for duty again in India, although I warned him that it would be dangerous for him to undergo the same prolonged exposure to malaria, and to privation and hardship of various kinds, as he had formerly endured.

Remarks.—It will be understood, I hope, that I do not bring forward this case as an argument for the curability of ordinary tropical leprosy of severe type. This was a case of only moderate severity, or it certainly would not have been so easily benefited in such a decided degree. I bring it forward chiefly because it is one of those interesting cases which, while standing well within the borders of a recognised class, nevertheless present certain departures from the usual type of that class, and provoke comparison not only with other genuine but more or less defective representatives

of the type, but also with certain other affections that stand outside the recognised category.

The first case which occurs to me as analogous to mine is one which was brought before this Society by Dr. Buzzard in April 1870. The second case is one in which a patient of the Westminster Hospital had leprous patches, which were anæsthetic, swelling of the ulnar nerve, bronzing of the skin, along with the deformity of nails and loss of terminal phalanges, wasting of interossei muscles, and the consequent *mainen griffe* which is so striking a feature in leprosy. The third is the case of a medical man, in whom a tendency to lepro-psoriatic eruption appeared, nearly simultaneously with wasting of the extensors of forearm, and contraction of the flexors of two fingers, exactly similar to what occurred in my private patient, whose case has been related, and which must have been preceded by mischief in the ulnar nerve. The link of union between all these cases and the one I have brought forward is the fact that all the patients had suffered from defective nutrition and other depressing influences; and in all of them there seem to have been local affections of the nerves preceding the affections of sensation and the muscular paralysis and wasting.

The case of Dr. Buzzard's patient may be shortly summed up as follows: She was a married woman, aged 39, subject to epileptic fits, and had habitually experienced much difficulty in keeping up her nutrition owing to digestive disturbances. The facts which attracted Dr. Buzzard's attention were hoarseness of voice, ptosis of left eyelid, stunted fingers (one on each hand having lost a phalanx), rigid contraction of three fingers of right hand, anæsthesia of fingers, especially on dorsal aspect, and to some extent in the forearms; general shrinking of the nails and fissured state of the skin in the hands, atrophy of extensors of right forearm and of interossei and thenar muscles of left hand; some thickening of the left eyebrow, a white patch on one forearm, and a couple of large cicatrices of so-called 'boils' on the forearm and face. There was also another circumstance on which Dr. Buzzard did not lay emphasis, but which, nevertheless, is in my mind deserving of careful attention. No less than three of her near relations—her father and two brothers—were so unfortunate as to get what is called a 'poisoned' finger, from working in chemicals; and in two of them it led to loss of a phalanx of an index finger. Considering what we know of the facility with which ignorant persons

attribute all kinds of affections of the fingers to 'poisoning,' it seems to me much more probable that there was a family tendency to this sort of affections of nutrition in the extremities.

The Committee of this Society which reported on this case expressed a somewhat decided opinion that it was not really leprosy, but (although it presented irregular features) approached nearer to the type of wasting palsy than anything else. I confess that this judgment seemed to me, at the time, rather singular; and, with all due deference to the Committee, the more I have thought about it since, the more impossible I have found it to acquiesce in their decision. Their main objection to the leprosy-diagnosis, viz., the existence of muscular wasting, seems to be no objection at all, if I am to credit what has been told me by several Indian surgeons; and it should be noted that an Indian surgeon, Dr. Farquhar, who saw the case with Dr. Buzzard, expressed a decided opinion that it *was* leprosy. It has now to be mentioned, though I shall leave Dr. Buzzard to speak on this part of the case, that the woman has since died by accidental drowning, and that dissection showed sundry changes in the nerves which he will describe.

The second case is that of my patient at the Westminster Hospital. This case occurred some time ago, but was recalled to my recollection by the others. H. G., aged 32, a costermonger, somewhat intemperate, probably, but not exhibiting any special signs of chronic alcoholism, applied to me in the year 1869. He had two enormous patches, on the right forearm and upper arm, which precisely resembled the patches in Mr. R. E. W.'s case in colour, and were similarly anæsthetic. He had scarcely a single nail, of either foot or of either hand, that was not dwarfed in a manner closely resembling those of Dr. Buzzard's patient. This condition was so remarkable that the man showed it to me of his own accord, but I paid little heed to the matter at the time. Besides this, he had lost the last phalanx of the middle, ring, and little fingers of the right hand, and there was some slighter appearance of deformity about the index; but I cannot, at this distance of time, describe the latter accurately. But I am sure, because the description of Dr. Buzzard's case at once reminded me of it, that in the fingers that had lost a phalanx, the remnant of nail was left seated *on the next phalanx.* Now this patient positively and categorically denied that he had ever had syphilis or venereal disease of

any sort; and certainly he had no cicatrices anywhere, no spots, no thickenings of bone, nor anything else to contradict his story: and the patches on the arm did not correspond to any syphilide with which I am acquainted, while they did closely resemble those seen in anæsthetic leprosy. I must not omit to mention that this man suffered under severe depression of mind; the expression of his face was really painful in this respect. Moreover there was both on face and neck, and also on the trunk, a tint of skin which, if it did not accurately correspond to so-called 'bronzing,' so closely resembled it as to make me apprehensive at first glance that the man had Addison's disease; indeed, a private patient of my own who really has that malady, and is a little like my hospital patient in figure and features, quite startled me the other day by the resemblance which the tint of skin produced.

I must hurry on to say that this man gave me a history of most severe and continued privation; he was one of the poorest of the hawker class, and was chronically starved, as his general emaciation seemed to show. I have seen him once or twice at intervals since 1869, but only hurriedly; and I may briefly say that all treatment that was tried was absolutely unsuccessful. I had not the opportunity of trying faradisation.

The third and last case which I must tax the Society's indulgence by referring to is that of a well-known provincial medical man, who lately showed me his right hand, of which the ring and little fingers are tightly and immovably flexed into the palm, and the hypothenar and interosseous muscles are a good deal wasted. The resemblance to the hand of my patient, R. E. W., was so striking that I jokingly asked this gentleman whether he had ever had leprosy. He seemed quite startled, and said no; but that about the time that he had the pain (mainly in the course of the ulnar nerve), which was followed by the muscular atrophy, he had troublesome psoriatic patches, with some loss of sensibility of the skin. He was particularly sure that he had never had syphilis; and he gave me a history of extreme over-fatigue and carelessness and irregularity about meals, and also a shock to the nervous system from a carriage accident preceding the occurrence of these symptoms.

I greatly regret that so little time is now left me that I can only in the most sketchy manner indicate the conclusions which have been impressed on my mind by the above

facts, and by others which I have met with in print (especially certain Chinese reports which Dr. Tilbury Fox has been good enough to show me). Briefly, they are these; and I hope that the discussion and my remarks in reply may give occasion for their more complete presentment to the Society. It appears to me that, instead of making more hard and fast the distinctions between leprosy and the diseases which more or less resemble it, we, if we desire the greatest enlightenment, ought to do the exact opposite of this. We ought, in fact, to follow up the line of thought which is suggested by the points of resemblance that exist between leprosy and certain diseases of the central nervous system, especially progressive muscular atrophy. This line of inquiry has been revived and particularly illustrated by the report of Dr. C. Reid on Hankow. If anyone will study this report he will find that the atrophic affections of the *muscles* have hitherto only received a very inadequate degree of attention, as symptoms of leprosy, in comparison with that which has been bestowed on the alterations of the skin, and other instances of interstitial absorption and changes of nutrition. In fact, if we were to venture to forecast at all the issue of further enquiries into the affections which come under the head of leprosy, it would appear that, so far from leprosy being likely to be enclosed, in future, between more rigid boundaries, it is more probable that the picturesquely typical examples of that disease, whether in the tubercular or the anæsthetic form, are merely the most strongly-marked expression of the concurrence of certain inherited tendencies in the central nervous system, with certain accidental depressing influences, such as malaria, or deficient nutrition (especially in the nitrogenous elements), or both of these at once; and that around these central and typically-developed cases, there are an indefinite number of examples in which the phenomena shade insensibly away to a point at which we cannot recognise any of the typical forms of the disease which are described in systematic treatises.

XXXV.—*A case of Tubercular Leprosy, with remarks on the treatment of Leprosy.* By TILBURY FOX, M.D. *Read April* 26, 1872.

THE case which I have to present to the Society is one of tubercular leprosy in progress of distinct amelioration. Much has been said of late about the discovery of cures for leprosy, as in the instance of the Beaupurthuy and Bhau Daji plans, which have both been greatly lauded. The case before the Society is interesting as showing that it is possible by very simple means to considerably alleviate if not to cure leprosy, and this is all that can be said of the particular plans recommended by the late Dr. Beaupurthuy on the one hand and Dr. Bhau Daji on the other, as far as the evidence goes at present. I may say that the present is the fourth case which has been greatly benefited by treatment in my hands, especially by the exhibition of large doses of quinine. In one case which Dr. Lionel Beale sent me, I really thought I was going to cure my patient, and the deposits about his face very nearly went. I have not made such progress as yet in the little patient I introduce to the notice of the Society to-night as in the other cases. My treatment consists in the adoption of hygienic measures of the best kind, the exhibition of large doses of quinine, kept up for some time, and in assisting the dispersion of the tubercles by various local applications, particularly the oil of cashew, which I have found very useful in certain cases. Dr. Fleming, in India, has met with considerable success in regard to local treatment of leprosy by the application to the tubercles of carbolic acid. Indeed, the possibility of greatly benefiting instances of leprosy is by no means a new fact in physic. It has long been recognised that the removal of the leprous from the endemic haunts of leprosy, and placing them under favourable hygienic and dietetic influences have often arrested the malady; and the old fashion of applying arsenious acid was one way in vogue some years ago of getting rid of the tubercular formations in the skin. It is no doubt a great thing to have discovered new means of alleviating the miseries and the actual bodily evils of the leper, but they take their place in company with other therapeutic measures, and do not stand alone as the only means of relief. The present case was admitted into University College Hospital under my care

at the request of Dr. F. Simms, who had been attending the child for some time. I am indebted to that gentleman for the following:—

'*Previous history.*—E. T., aged 10, was born in India, of European parents, and remained there four years. Was healthy at birth, but owing to the inability of her mother to nurse her, was given over to a native wet-nurse, whose health, however, gave way after four months of duty, so that she was discharged, and the child was left to be brought up by hand. No trace of this woman has ever been discovered, and at the time of her dismissal she complained only of general debility, loss of milk, and some emaciation. The mother appears to be in fair health, but has had several miscarriages; the father exhibits no signs of having had syphilis, and in spite of his many years' residence in India, is a strong and healthy man. For some time after the child's birth the family resided at Saugor, one of the most malarious stations in India.

'About two or three years after birth, the rash which the child now displays first appeared on the legs in the shape of patches of a bright red copper colour, well defined, and of the size of half-a-crown, not scaly or fissured, and with no thickening of subjacent skin. There has never been any irritation whatever. I do not gather that the child suffered from any sickness, bad health, shivering, or any symptoms premonitory of the appearance of this eruption, but on the contrary, it is stated that she was in perfect health until the rash came out. From the legs the disease spread to the shoulders and arms, leaving the centre of the body free, and thence it went to the face, appearing there in small circular spots of a yellowish colour, which were scattered about, and soon followed by a puffy swelling of the face. At the age of 4, E. T. was brought to England, and although the disorder was in no way influenced by treatment whilst in India, yet during the sea voyage it entirely disappeared of its own accord.'

The child was first seen by Dr. Simms in September 1869, that is, nearly four years after her arrival in England, soon after which event the rash had returned in the old places, and had increased, its surface being totally unaffected by arsenic, or such other treatment as had been employed.

Present state.—The child presented the following appearance on admission: She is healthy and well developed. The face is broad, flabby, muddy-looking, and with a markedly sullen expression; the eyebrows are generally thickened and

overhung; there is all over the face a stain of a dark yellow colour, but with patches of clear skin upon the cheeks; all parts are thickened. The nose is swollen, and flattened out as it were, owing to the general thickening of the structures. The lips are thickened. There is some deposit of material at the inner part of the eye and under the eye on either side. The integuments are raised in bands about the forehead, which bands run from above downwards. The cheeks are heavy, and droop as it were. All over the shoulders and arms are broad discoloured patches, irregular in outline, larger than the palm of a man's hand, running one into the other, and feeling thickened and brawny, but perfectly moveable upon the cellular tissue below. The swelling is especially perceptible about the insertion of the deltoid; around these patches the skin is fair and clear. Just below the left elbow, on the outer aspect of the arm, are three little pinkish depressions, or atrophied spots, that are perfectly anæsthetic; the sensibility of the surfaces diminished slightly at the upper and outer part of the arm. The hands are swollen, the tissues feel flaccid, and look slightly livid. The left ulnar nerve is enlarged. The right arm is like the left. The front of the chest looks as if it had been rubbed with iodine, and the stain were just dying out. There are stainings about the shoulders and the back. On the legs and thighs are patches of a bright colour, but less thickened than those on the arms. There are marks of one or two bullæ on the joint of the knee.

It has been remarked by the friends that wherever a tight-fitting article of clothing was found no eruption was presented, thus the space under the garters is quite clear, though all above and below was diseased. Tested by pinching and a needle, no difference in sensation could be detected between diseased and healthy surfaces, except in the limited spots named. The child can pick up any object from the ground, and can dress and undress herself perfectly.

Comments.—First of all as regards the cause of the child's attack. She resided with her parents in her earlier days in a malarious district, but this will scarcely account for her disease, because her health did not seem to have been deteriorated by exposure to malarial influences, nor had she long residence in districts in which leprosy is endemic, nor was the disease apparently hereditary. But suspicion points to her being suckled by a leprous nurse as the true explanation. The nurse was very ill at the time she suckled the child, and probably some time afterwards became a leper.

We can only conjecture as much. I want, however, to speak mainly about the features of the disease.

It will have been observed that the first noticeable feature about the case was as usual in tubercular leprosy, a discoloration of the skin. There were no appreciable general symptoms, which means that the disease was insidious. The discoloration was marked about the body, and then the face, subsequently tubercles developed, and finally spots of anæsthesia. There were present three characteristic signs of leprosy in this case, viz., *discoloration*, *deposit*, and *anæsthesia*. As regards the *discoloration*, it is partly hyperæmic and partly pigmentary; in the tubercular variety it heralds in the formation of the leprous granulation tissue. It occurred in patches at first, and then in large and extensive tracts, and in the seats of the subsequent deposit. The hyperæmia is often very well marked about the face before the tissues thicken there, the patient looking as if much flushed, only the hue is permanent.

Deposit.—The deposit or formation of new granulation tissue took place in the seats of the antecedent discoloration, but especially about the parts where the fibro-cellular tissue is lax, i.e., the nose, the eyes, and the face generally. The appearance of the face is very characteristic; in my little patient the eyes, nostrils, lips, eyebrows are thickened and dusky, giving, as Dr. Simms has noted, a sullen aspect, or lion-like expression. Leprosy ages patients wonderfully.

Anæsthesia.—This is generally much more marked than in the little girl's case. One side of a leg, or half the hand will be anæsthetic, or there are anæsthetic centres in the patches of disease. In most cases the nerve trunks are to be felt enlarged with nodular swellings in them. In the present case one can detect the enlarged ulnar nerves. In consequence of the nerve complication the tissues are lax, the parts livid and cold.

The mucous surfaces are also the seat of the deposit of granulation tissue, ex.: the palate, the conjunctivæ. The mucous surface of the nose is swollen and infiltrated with deposit. The voice and breathing are altered from the same cause in my patient's case.

Treatment.—The various remedies tried by the several practitioners who have had charge of the case from time to time, have been arsenic, mercury, iodide of potassuim, bark, and copaiba, internally; and externally, ointments of nitric oxide, and ammonio-chloride of mercury, simple vapour and

mercurial baths, friction with cod-liver oil and lotions of sulphurous acid, also an ointment of nitric-oxide of mercury with sulphur; but of all these, iodide of potassium with bark has alone been of any use. Mercury, even when tried with the bath, has been apparently injurious.

The child remained under Dr. Simms' treatment for a year or more, and with this result—that the general health improved, the appetite and spirits revived, and that for several months. In Dr. Simms's own judgment, and in that of a medical man formerly in charge of the case, the disease was checked. Large and steadily-increased doses of iodide of potassium with bark were given, and during the time of its administration the thickened and brawny state of the skin went away, allowing the outline of the shoulder-blades to be seen; the colour also slightly faded, and clear spaces of healthy skin appeared, but on the face and forearms but little change ever showed itself, the colour of the skin on these exposed parts becoming livid and blueish instead of dark red or coppery. Whenever mercury was administered this improvement ceased, and on one occasion fresh patches appeared. Iodism was produced with great difficulty, and ceased speedily on the drug being stopped.

Treatment.—On November 18 I began to give the patient (11 years of age) a grain of quinine three times a day. The dose was increased to 1½ grain in a fortnight, then to 2, and then to 9 grains three times a day up to February 3. The girl was allowed good diet and plenty of fresh air. She could not bear a larger dose of quinine. She very much improved in health, and the thickening of the integuments of the general surface of the body diminished. At first the face did not improve, but subsequently it did so distinctly, for the ridges which were very noticeable about the forehead went more or less completely; the cheeks, which 'hung' down as it were, diminished in size; and the sullen look lessened markedly. On February 22, however, she complained of great pain in the right iliac region, but bore pressure there well. She had no headache, and was not sick. Her bowels were confined; her skin was hot and dry, and the temperature rose to 103·3° F. and the pulse to 120. From this date to March 4 her temperature kept above 100° F., and it did not get quite normal till March 22. During the same time the whole of the lymphatics of the body appeared to be inflamed, though the symptoms and signs were not those of angeioleucitis. There were no rigors, no

red lines mapping out the course of the lymphatics. But the latter could be felt as hard knotty cords, and in the fleshy parts of the calf, the thigh, the forearm, the upper arms, the whole tissues were hard, indurated, and more or less brawny, but not reddened, and somewhat tender. In fact, the condition seems to be one of general thrombosis of the lymphatics; and I believe the high temperature was due to this condition. As the lymphatic mischief subsided, the temperature fell. No abscess formed, though at one time it seemed likely this might occur. The patient was left very weak and emaciated. During the middle of this intercurrent attack—the like of which I never saw or read of before—the quinine, which had been omitted at the outset of the attack, was resumed, and, it seemed, with the effect of lowering the temperature.

After the attack the patient went on with the quinine, and has gradually improved, the arms and legs having practically lost their leathery thickened feel, but still being discoloured, though not looking so bronzy as before. The oil of cashew was applied, after the Dr. Beaupurthuy fashion, to the face, and with a certain degree of benefit.

On the whole, the disease has not only been checked, but it is much less marked; and I show it to the Society as an example of what can be done to alleviate the sufferings of the leper.

XXXVI.—*On Four Cases of Molluscum Contagiosum which occurred in one Family.* By Dyce Duckworth, M.D. *Read April* 26, 1872.

A WOMAN, J. G., æt. 24, came to St. Bartholomew's Hospital, suffering from numerous tumours of molluscum upon her face and mammæ. A large one was suppurating at the extremity of the nose. She also brought an infant, her second child, æt. 16 months, which was still being suckled, and which presented numerous mollusca upon its face and neck. She related the following history:

Soon after its birth, her eldest child, a boy now three years old, became affected with these growths; no advice was sought for them, and they continued to grow, and fresh ones appeared, until nine months ago, when she brought the child

to the hospital and had the tumours removed. At this time, the house-surgeon who saw her, remarked that she had caught the disease, and pointed out some tumours upon her face and nose. Since that time the growths have continued to appear upon her face and breasts, especially around the nipples. About this period she noticed tumours upon the infant's head and about its mouth, and they have since appeared upon its neck. Four or five months ago, the grandmother, who sleeps with the eldest child, and often nurses the baby, became affected with these growths.

[The grandmother, mother, and infant were introduced for the inspection of the members of the Society.]

The cases presented nothing especially noteworthy. The tumours were in various stages of growth—some were sessile and some were pedunculated.

The point of interest in these cases was that they appeared to favour the original theory of Bateman, who believed these growths to be contagious, and who consequently applied the well-known epithet to the disease.

Some observers have lately expressed the opinion that these growths occur as an epidemic amongst members of the same family. Mr. Erasmus Wilson holds this view, and Dr. Robert Liveing has recently reported cases which he believed must either bear this explanation or go to support the theory of contagion.*

Not unfrequently cases are met with in which the affection seems to occur spontaneously, and where no history of contagion can be proved. It is not, however, always possible to accept the statements of hospital patients as to contagion, or the reverse. The disease is certainly more common among the lower than the upper classes of society. Individuals in a family sometimes become affected, and the disease does not spread, despite all favourable conditions for such an occurrence. The growths have never been propagated by inoculation.† My own experiments upon myself and hospital pupils have failed on four or five occasions, although the pultaceous contents of the tumours have been well rubbed into parts richly furnished with sebaceous glands. Other experimenters have reported like failures. The intimate nature of these growths has been thoroughly determined and placed on record.

* 'Brit. Med. Journal,' Jan. 6, 1872.

† Since this communication was made Dr. Paterson, of Leith, has informed me that he has successfully inoculated this disease. I must refer for further particulars to a paper on the subject, which will appear in the forthcoming volume (viii.) of the St. Bartholomew's Hospital Reports.

XXXVII.—*Case of Removal of the Second Metatarsal Bone, and subsequent Excision of all the Tarso-Metatarsal Articulations.* By TIMOTHY HOLMES. *Read April* 26, 1872.

JAMES W., a middle-aged man, was admitted into St. George's Hospital, on November 8th, 1871. A plank fell upon his left foot four months before admission. The foot gradually became worse, with pain, redness, and swelling. On admission there was a sinus leading down to the second metatarsal bone, which was carious in nearly its whole extent.

Nov. 24.—Mr. Holmes dissected out the second metatarsal bone. There was pretty free hæmorrhage, which was controlled by two or three ligatures and pressure. The parts were brought together by several sutures, and dressed with carbolised muslin, a piece of lint being placed in the wound.

Dec. 8.—For two or three days after the operation the wound seemed to be going on satisfactorily, but soon an abscess formed on the outer side of the dorsum of the foot, which burst and discharged pretty freely. To-day an incision was made on the inner side of the foot, and a good deal of pus let out. On the 18th, another counter opening was made. Meanwhile, the wound whence the second metatarsal bone was removed seemed to be healing well, though the foot itself was painful, and the man's rest interfered with in consequence.

Jan. 3.—Another abscess has formed in the foot, which burst and discharged freely. Considerable crepitation can be distinctly felt between each of the metatarsal bones and the tarsus. In consequence of this unsatisfactory state of affairs, Mr. Holmes wished to perform Lisfranc's operation, but the man was most unwilling to part with his toes.

11.—The man, whilst desiring greatly to have his toes preserved, consented to allow Mr. Holmes to operate as the circumstances of the case might demand. Chloroform having been given, Mr. Holmes made a semicircular incision on the dorsum of the foot and dissected the flap upwards. He then disarticulated at the tarso-metatarsal articulation and sawed off the ends of the four tarsal and then of each of the four remaining metatarsal bones. The disease seemed to be confined to the portions of bone removed. The flap was fixed

with two or three silver sutures, and the limb placed in a box-splint, the wound being dressed with simple water dressing.

Jan. 12.—T. 103·8. P. 150. Passed a restless night, but got a little sleep after ½ grain of morphia. Feels low, and in much pain. The wound looks quiet and healthy, and there is no loss of sensation in the toes.

13.—T. 101·2. P. 108. Vin Rubri ℥iv. Another bad night, with continued and excessive pain. His general aspect, however, is improved. The wound looks inflamed and unhealthy. A little green dressing to be applied.

15.—T. 100·2. P. 88. Rep. Vin. His rest is better, and the pain much less.

19.—The sutures were removed to-day, the wound looking healthy. The general health of the man also is satisfactory, the temperature and pulse having fallen to the normal. Splint changed; simple dressing resumed; injections every night; ½ grain of morphia continued.

29.—The wound has been discharging rather freely, but is now healing well, and filling up rapidly.

Feb. 5.—The wound is apparently healed, but a probe may still be passed some distance down.

9.—The box-splint was taken off that he might be measured for a glued one, and the former was not resumed, but in its place an inside leg splint; even this is discontinued whilst he is in bed.

14.—The wound looking highly satisfactory, a glued splint was put on, and the patient sent to Wimbledon.

April 8.—He was seen on his return from the Wimbledon Hospital. The wound was entirely healed, except a small superficial sore at the inner part. He could just put the foot to the ground. The toes were moveable to a very slight degree, apparently from the traction of the extensor tendons being transmitted through the cicatrix. The second toe was out of the line of the others, riding upwards between the first and third toes, which touched each other. This, however, had been the case before the operation. The man was well satisfied with the condition of his foot.

Remarks.—The subject of excisions of the separate bones of the foot is one on which surgical opinion does not seem quite settled. Few surgeons now deny the advantages to be obtained in well-selected cases from excision of the knee and hip. Many still regard excision of the ankle with disfavour; yet as far as I can judge from a limited personal experience, there can be no question that in cases of traumatic origin

sound union may be confidently expected, and the patient in such cases recover rapidly, and with a foot little inferior to the healthy one. Three such cases have occurred to me, and recovery has been very rapid in all of them. But excisions of the bones or joints of the foot itself are still less generally practised, although the experience of many surgeons testifies to the great success which sometimes ensues upon the complete removal of the os calcis, the astragalus, or other single bones of the tarsus; while, if I am not mistaken, common experience also testifies to the very frequent disappointment which follows upon gouging, or other partial measures. I am here speaking, of course, about affections which are too extensive to be under the command of local applications, such as sulphuric acid. It is worth remembering also that the prospects of a surgical operation are always much better in such cases as can be clearly traced to a traumatic cause. This was the case in my patient, whose history I have detailed, and has been so in most of the rapidly successful cases which I have seen. I may remark upon the excision of the second metatarsal bone, that it occurs to me now to have been a mistake to excise its tarsal articular extremity as well as its shaft. The end was not diseased; and in digging it out of the box formed by the three cuneiform bones, much violence was necessarily inflicted on the neighbouring articulations; hence, as I believe, the propagation of inflammation to the row of tarso-metatarsal joints. The excision of the latter joints is a very simple matter. The extensor tendons, it is true, are severed; but if the parts are carefully kept in position afterwards, this is not of much importance.

I have brought the case before the Society rather earlier than I would otherwise have done, as I wished to secure the attendance of the patient, and feared to lose sight of him before the next session. Recurrence of the disease is no doubt still possible, and I should have preferred delaying the report of the case till the parts had been soundly healed fo some time. But the case, even as it stands, clearly shows the possibility of recovery, even after very extensive excision in the foot; and as it is, as far as I know, unique, I thought it might interest some of our surgical members. I shall be glad to place the ultimate issue of the operation on record, if it is thought worth while.

XXXVIII.—*Case of Progressive Muscular Atrophy.* By Edward Headlam Greenhow, M.D. *Read May* 10, 1872.

MARY P., aged 27, married woman, was admitted into the Middlesex Hospital, under my care, on March 15, 1872.

Previous history.—Patient had enjoyed good health until her marriage, four years ago, after which she had considerable anxiety and physical fatigue, and was much exposed to damp. Has had no children nor miscarriages. At the end of 1870 she had an attack of illness, attended by pains in the joints and limbs, which confined her to bed for six weeks. On recovering she went into Yorkshire, and continued tolerably well for some weeks, when she again suffered from pains in the legs, and in the first, second, and third fingers of each hand, which became slightly flexed. A week or two later she became worse, and was again confined to bed for several weeks by acute pain in the back and limbs, and was said to be suffering from 'rheumatics in the spine.' For this she was blistered over the sacrum, and, on getting up, found that she had lost the use of her lower limbs, and observed that both her legs and arms had begun to waste. So far as could be ascertained, the muscles of the hands were the first that wasted. She returned to London at the expiration of six months, and had so far improved that, at the end of 1871, she was able to walk with help, and could even lift small articles, but was still unable to perform such movements as fastening her dress, and the like. Since Christmas, 1871, her complaint has made rapid progress; and for two months before admission into the hospital she has been perfectly helpless. About a fortnight ago she took cold, and has ever since suffered from cough and difficulty of breathing, which have become much worse during the last week.

State on admission.—Aspect anxious; is much depressed, readily bursting into tears when asked about her ailments. Complains of extreme prostration, and of ill-defined pains in the back and limbs. Lies on her back, with the hands partly flexed, and the feet everted. Is quite incapable of moving herself in bed. Is very restless, and

requires her position to be frequently changed. Suffers from orthopnœa and frequent cough, with much difficulty of expectoration, the cough being feeble and abortive. Pulse 80—irregular both in force and rhythm. Temperature in the axilla, 100°.

Face fairly nourished; cheeks and lips of natural colour. The muscles of the trunk are all more or less wasted, especially the intercostal and pectoral muscles. All the muscles of both arms and forearms are greatly wasted and flabby, the wasting being generally more marked in the extensors than in the flexors, but the triceps is less atrophied than the biceps. The deltoid muscles are also less wasted than the other muscles of the arms. There is well-marked wrist-drop in both hands. The fingers are all semi-flexed—that is to say, they are bent at the proximate phalangeal articulations. There is great wasting of the muscles of the ball of the thumb and of the ulnar side of the hand; the interossei are also markedly wasted. The wasting is quite symmetrical on the two sides. Dorsal and scapular muscles less wasted than those of the extremities. Patient is unable to raise her arms from the bed; she cannot flex or straighten, but can pronate and supinate the forearms. Cannot extend either fingers or wrists, but they are extended without difficulty or resistance by another person, though when so extended they very soon return to their bent position. There are no fibrillar quiverings of the muscles. Sensibility to pricking, touch, heat, and cold is unimpaired. There is slight tenderness, both on pressure and percussion, in the spinal region, but not referable to any precise spot.

The muscles of the lower limbs are less wasted than those of the arms, but there is great loss of power. Patient is unable to stand, and cannot fully extend her knees. Can straighten the left knee more fully than the right. When partially straightened the knees flex again involuntarily, but there is no rigidity. Sensation in the lower limbs is perfect. There is complete control over the sphincters. Intellect unimpaired. Pupils rather dilated. Voice weak; breathing embarrassed. Patient suffers from occasional attacks of distressing dyspnœa. The expansion of the thorax during inspiration is very slight, breathing being chiefly carried on by the diaphragm. The chest is everywhere normally resonant on percussion. Rhonchus and sibilus are audible over both lungs, anteriorly and posteriorly; and a few moist crackling sounds are heard posteriorly in the bases of the lungs. Ex-

pectoration scanty, muco-purulent, frothy. Heart-sounds normal; but, by reason of the thinness of the walls of the chest, the movements of the heart are seen over a very extended area. Urine scanty, clear, acid, of a deep port-wine colour; sp. gr. 1023; free from albumen, sugar, or bile-colouring matter.

Ordered an expectorant mixture, with tincture of squills and carbonate of ammonia, and a full allowance of port wine, chicken, eggs, and milk.

Progress of case.—March 16.—Patient has passed a sleepless night, and suffered much from orthopnœa and cough. In all other respects she is the same as yesterday.

Ordered a draught, containing ten grains of chloral hydrate, to be taken at bedtime, and repeated every two hours, if necessary.

At midnight, the sleeplessness still continuing, one-sixth of a grain of acetate of morphia was injected subcutaneously into the arm.

17.—Slept well after the injection of morphia; complains of aching pains in the hands, which are relieved by having them clasped together, so as to straighten the fingers. Cough very troublesome; expectoration difficult. Urine, sp. gr. 1024, acid, and of the same port-wine colour as yesterday's. The urine of yesterday has become much darker by standing in the air loosely covered.

Morphia injection to be repeated.

18.—Slept well after the injection. Urine still of a bright port-wine colour, unchanged by boiling. Pulse 132, small and compressible; temperature in the axilla 99·4°.

19.—Still much cough; expectoration scanty, muco-purulent, frothy. Anteriorly the breath sounds are dry and harsh, but the patient was too ill to bear auscultation behind. Pulse 134, thready. Respirations 52. Temperature in the axilla 100·4°. Urine continues scanty, and of a rich port-wine colour.

20.—Patient in the same state. Pulse 136. Respirations 48. Temperature 98·8°. Urine of a port-wine colour, strongly acid, sp. gr. 1028; turbid when cold, but clearing without change of colour when boiled.

21.—Patient being unable to sleep, the injection of morphia was repeated at 11.30 P.M. last night, after which she slept well. Is bathed in perspiration. Pulse 144, small. Respirations 44, laboured. Slight lividity of cheeks and lips. Much prostration. Intellect unimpaired. Breath sounds

harsh. Loud snoring rhonchus audible over front of chest. No moist sounds. Patient is only able to speak in a whisper.

22.—Early this morning the patient was attacked by violent dyspnœa, became unconscious, and died in a few minutes, about 6 o'clock A.M.

Chemical Examination of the Urine.—On standing a few hours, a scanty, flocculent deposit settled down, which contained some squamous epithelium and a few pus globules; no tube casts. The addition of nitric acid deepened the colour of the urine, but produced no other change. Boiling, either with or without nitric acid, caused no deposit; and did not discharge or otherwise affect the colour. Treated with pure hydrochloric acid, the colour became somewhat darker, and assumed a purplish hue; but no deposit was thrown down.

Having determined that the colour of the urine was not caused by the presence of hæmatine, and thinking it possibly due to urrhodine or indigo red, I asked my colleague, Dr. Divers, to examine it carefully, and he has favoured me with a very complete report of his analysis. His conclusion is that the urine differed from normal urine principally in containing uroerythrine, a colouring matter first described by Heller, in his 'Archives' for 1853. It is stated in Dr. Markham's translation of Neubauer and Vogel's 'Guide to the Analysis of the Urine,' that this pigment gives to deposits of uric acid and urate of soda their brick-red or rosy hue; and that it exists in solution in abnormal urine, and gives to it its red colour. Nothing more, it is added, is known of this colouring matter.

Post-mortem Examination. General Appearance.—Moderate rigidity. Wrists, fingers, feet, and toes flexed. The interossei and muscles of the thorax and neck almost destroyed. Other muscles generally much atrophied.

Thorax.—Subcutaneous adipose tissue existed in fair proportion, and was of a rich butter colour. The pectoral muscles consisted merely of a few fasciculi of fibres. Both lungs were connected by a few old adhesions to the back of the thorax; and, on removal, were found to be solidified almost throughout their lower lobes by lobular pneumonia. The upper portions of the lungs, especially at their posterior aspect, were the seat of hypostatic congestion. The thin anterior margins were emphysematous, and the bronchial tubes were all completely filled with viscid frothy secretion. The heart was healthy; its muscular walls of normal thickness and good colour; its valves healthy and competent.

Abdomen.—The liver and spleen were healthy; the kidneys somewhat granular, and their capsules slightly adherent.

Nervous System.—The brain presented no abnormal appearance. The spinal cord and the nerves of the bronchial plexus were put aside for microscopical examination. Some portions of muscular tissue from the arms were also preserved for the same purpose.

Microscopical Appearance of the Muscles.—Dr. Cayley has favoured me with the following report upon the muscles:—

'Portions of the extensor muscles of the left forearm, which were extremely wasted and of a pale colour, presented under the microscope the following appearances:

'1. Many of the ultimate fibres were greatly reduced in size, without being otherwise altered in appearance; the smallest did not measure more than $\frac{1}{1800}$th of an inch in diameter; and they varied in size from this to $\frac{1}{500}$th of an inch.

'2. In many places the fibres were granular and the striation obscured.

'3. Here and there some of the fibres presented the advanced condition of the waxy degeneration of Zenker, and were broken up into irregular fragments.

'The relative proportion of the fibres thus variously affected varied very much in different parts of the muscle. In some places all the fibres, except for their diminution in size, appeared normal; in other places most of them were granular: and, intermixed with these two kinds, were fibres in a state of waxy degeneration — generally single ones, sometimes two or three close together. Thus the affected muscles appear to have undergone three different forms of change—

'1. Simple atrophy.

'2. Atrophy arising from granular degeneration.

'3. Atrophy produced by parenchymatous inflammation, causing the so-called waxy appearance.'

Microscopical Appearance of the Spinal Cord and Nerves.—Portions of the spinal cord and nerves were examined by Dr. Cayley and Mr. Kesteven. Dr. Cayley states, as the result of his examination, that 'The most conspicuous alteration noticed on examination of the cord was a remarkable dilatation of the central canal in the lower dorsal region, which was plainly visible to the naked eye. This dilatation, which began very abruptly, extended for a length of about an inch, occupying the lower dorsal and upper lumbar region of the cord, when it again as abruptly diminished, and the re-

mainder of the canal, though decidedly dilated, did not measure more than $\frac{1}{250}$th of an inch in diameter. The dilated portion, which was somewhat heart-shaped, on transverse section with the broad part in front, measured as much as $\frac{1}{20}$th of an inch in its longer diameter, and was lined with normal columnar epithelium.

'In the cervical region the canal was large, but did not appear to be abnormal; in the upper dorsal region it presented a confused mass of cells without any very distinct central cavity, an appearance of frequent occurrence in advanced life. In the middle dorsal region it again became somewhat dilated.

'Even where the canal was dilated, the commissures and surrounding grey matter did not present any appreciable morbid change.'

The only other morbid change Dr. Cayley could discover was the existence of very wide perivascular spaces round the small arteries. In some places these spaces were equal in diameter to the calibre of the vessel. They occurred in all parts of the cord, but were, perhaps, more conspicuous in the grey matter.

Dr. Cayley also examined the various cords of the brachial plexus on the left side. 'They were manifestly smaller than usual, but transverse sections did not present any abnormal elements or interstitial growth between the nerve fibrils, nor any fatty change. The nerve elements appeared to be normal.'

Mr. Kesteven's report of the result of his examination of those portions of the spinal cord sent to him does not materially differ from that of Dr. Cayley, excepting that he found an excess of nucleated corpuscles of connective tissue in the substance of the transverse commissures, and two secondary or supplemental canals at one part of the dorsal region. I append his report in full:

'*Cervical Region.*—Central canal rather larger than usual; in some sections open and empty, in others filled and obliterated by nuclei and broken down epithelium. The substance of the transverse commissures around and on each side of the canal was more than usually studded with nucleated corpuscles of the connective tissue. The vessels had evidently been long and greatly distended, as they lay in wide so-called "perivascular spaces."

'*Dorsal Region.*—The central canal very greatly enlarged, measuring, in one direction, four of the one-hundredth inch spaces of a micrometer; in another direction it covered seven

of these spaces. In some parts it contained a little *débris* of nuclei, but was, for the most part, empty. A very striking appearance exists at one part. In several sections there is obviously an appearance as of two secondary or supplemental canals or diverticula from the principal canal, but no distinct passage of communication is evident. They lie beside and at about $\frac{1}{125}$th of an inch from the central canal. Their measurements are respectively $\frac{1}{125}$th and $\frac{1}{500}$th of an inch in diameter, and they are lined with cylinder epithelium the same as the central canal. In other respects, the adjacent substance of the cord presents the same signs of long-standing vascular distension as are seen in the cervical region.

'I could discover no alteration in the appearance of the multipolar cells, nor was there any morbid change in the other structures of the cord.'

To this report Mr. Kesteven adds the following as the result of a further investigation. 'On examining other sections of the cord, I find evidence of the nature of the diverticula that I have noted. I have several sections showing the different phases of the distension and giving way of the walls of the canal, forming passages of communication, the fluid carrying the epithelium before it.'

Remarks.—The case I have just read is a very characteristic one of 'progressive muscular atrophy.' As, however, in some other cases which have been recorded, the death of the patient was only the indirect result of this disease; for, having contracted a by no means severe attack of bronchitis, and being unable to expectorate freely in consequence of the impaired action of the respiratory muscles, she died of asphyxia. When admitted into the hospital the patient was already too ill to undergo any prolonged or minute examination, and answered questions with difficulty. The effect of faradisation on the affected muscles was not, therefore, tried, though what that would have been may be quite certainly inferred from the results of the microscopical examination of the muscles after death. The electro-muscular contractility would have been found deficient in the atrophied muscles in exact proportion to the amount of wasting. A doubt must likewise be felt respecting the true character of the six weeks' illness from which the patient suffered at the latter part of 1870. Her illness appears to have commenced suddenly at that time, and the question is whether she then had an attack of acute rheumatism, or whether

the severe pains from which she suffered were due to the disease in the muscles. I am myself strongly inclined to the latter view. Several years ago I had under my care a patient in whom typhoïd fever was followed by considerable muscular wasting and temporary deformity, both of shape and position in the lower limbs, attended by such excessive pain of the atrophied muscles, that the patient was unable to move the limbs or even to bear them touched. Dr. Jaccoud also has recorded a case in his 'Lectures on Clinical Medicine,' which was, at the outset of the illness, attended by very severe pains in the affected limbs.* The same author likewise refers to some previously-published cases, attended by similar pains; and states, as the result of his observation, that these pains have only occurred when the atrophy has advanced rapidly, adding that there is a constant relation between the rapid progress of the muscular wasting and the severity of the pains.

The present case cannot be said either to throw any new light upon the pathology of this obscure disease, or to corroborate in any important respect any one of the opinions respecting it which have been founded upon previous cases. The one apparent exception to this statement is that Sir William Gull, many years ago, published a case of muscular atrophy,† in which there was enlargement of the ventricle of the spinal cord in the cervical region. Not to dwell upon the circumstance that the enlargement of the central canal in my patient was most obvious in the dorsal region, there is this other important difference in the cases, that, whereas in my case so careful a pathologist as Dr. Cayley failed, on repeated examination of the cord throughout its whole length, to find any appreciable morbid change, in Sir William Gull's case there was atrophy of the grey matter, and 'one or two granule cells were found scattered amongst the white columns.' The large perivascular spaces found in my case cannot be considered as special to this disease, or as throwing any light upon its true cause, seeing that they are also commonly found in other diseases of a very different kind. It is probable that, as suggested by Mr. Kesteven, they only indicate long-continued distension of the vessels of the spinal cord.

The changes observed on microscopical examination of the

* Leçons de Clinique Medicale, p. 327.

† Guy's Hospital Reports, Third Series, vol. viii. p. 244.

muscles agree in the main with what has been seen in several previously-published cases, but differ from others in the absence of fat. They very closely resembled the degeneration described by Rindfleisch, in his 'Manual of Pathological Histology,' under the name of 'the waxy metamorphosis of muscles;' and which he regards as the result of a chronic inflammation of the muscular tissue. Cornil and Ranvier describe the same appearance of the muscles under the term 'vitreous degeneration,' a more convenient name than 'waxy,' which might convey the impression that the change in question is identical with the so-called waxy, lardaceous, or amyloid deposit. The descriptions both of Rindfleisch and of Cornil and Ranvier, refer, indeed, to the degeneration often met with in certain muscles after death from typhoïd fever, and not to that seen in cases of muscular atrophy; but in fact the alterations which the muscles had undergone in my case of muscular atrophy appear to have been identical with those which occur in typhoïd fever. On comparing their microscopical characters with those presented by some portions of the abdominal muscles taken from the body of a young woman who died of typhoïd fever under my care about the same time, the appearances are so similar that, unless the specimens had been carefully labelled, it would be almost impossible to distinguish them from each other. Hence it would appear that, whilst all the obvious phenomena of muscular atrophy are the direct consequences of the wasting of the muscles, the degeneration which they undergo is not of a kind special to this disease, but may occur in more diseases than one. We must, therefore, conclude that the muscular wasting in these cases is secondary to some other condition—probably to some nerve lesion, the nature and seat of which is at present undetermined.

XXXIX.—*A Case of Paralysis of the Senses of Smell and Taste, following Concussion of the Brain.* By Burney Yeo, M.D. *Read May* 10, 1872.

THE subject of the following communication came as an out-patient to King's College Hospital, on January 11, 1872, complaining that he could neither taste nor smell. He stated that he had completely lost both senses, ever since an accident which happened to him on the 12th of last September. On that day he was driving a laundry cart, and near Westminster Bridge the horse was frightened by a steam roller, ran away, and coming with the cart against a heap of stones, threw him out.

He was taken to St. Thomas's Hospital, and I am indebted to Mr. Croft, under whose care he was admitted, for the following brief notes of his condition at that time.

He was brought to the hospital in a semi-conscious state, and on examination a slight contusion was found at the back of the head, but there was no fractured bone. Shortly after admission he vomited; when he became conscious he complained of great pain in the forehead.

He was ordered milk diet, with beef-tea, ice to the head, and a calomel and rhubarb purge. In the night he became quite delirious, and was insensible to all that was passing around him. The next day (Sept. 13) he was given croton oil, as the bowels had not been relieved. This acted freely, and the pain in the head became much less. On the 16th he felt quite well and wished to leave the hospital, which Mr. Croft, however, refused to allow him to do. On the 19th he said he felt as well as ever he did—he had no pain in his head—his appetite was good, and he insisted upon leaving the hospital.

This account corresponded entirely with that which the patient gave of his accident, when he came under my care about four months afterwards; save, however, that he had told the nurse in St. Thomas's Hospital that he could not *taste* the castor-oil which she had given him.

The patient was an intelligent, healthy-looking man, though pale; was fifty years of age, married, with seven healthy grown-up children. He had never had venereal nor any other disease. Besides the loss of taste and smell, he had suffered much from giddiness and from pains in the head, extending from the mastoid portion of the temporal bone over the ear to the forehead on the right side. Ever

since the accident he had suffered from these pains. They would sometimes continue for two or three days at a time, and were, occasionally, so severe that he could not raise his head.

The patient's statements were tested in every possible way, and several odorous and sapid substances were applied respectively to the nose and tongue, but there was not the slightest evidence of the existence of any power of *smelling* or *tasting*. Salt, sugar, dilute acid, solution of quinine, tincture of assafœtida applied to the lips, the centre and back part of the tongue—to the under as well as the upper surface—were not recognised in any degree.

The sense of touch—common sensibility in the tongue—was, on the other hand, quite perfect; so were all its movements. The sense of smell was as completely absent as the sense of taste, and even a tolerably strong solution of ammonia produced no effect whatever, when held near the nostrils, appearing to show that, not only the sense of smell was absent, but that the common sensibility of the deeper portion of the nasal mucous membrane was also diminished. The slightest touch, however, at the orifices, or directly within the nostrils, was readily felt. There was no paralysis whatever of any other nerves, except those which minister to the senses of taste and smell. The appetite was good, although the pleasure of taking food was gone.

He was ordered five grains of iodide of potassium three times a day.

Jan. 15.—The patient states that after taking two doses of the medicine he had a severe attack of running from the eyes and nose, with pains of a burning, smarting kind across the forehead, and slight swelling of the glands of the neck. These symptoms were so severe that he was afraid to take any more of the medicine. In other respects his condition was unaltered. The dose of iodide was reduced to two grains three times a-day.

18.—He states that after the second dose of the fresh medicine, the symptoms of iodism returned, but they were not so violent as on the first occasion. He thinks his taste is coming back. Tincture of assafœtida, he says, seems a little *bitter*, and he can now smell slightly the solution of ammonia, to which he was before quite insensible, but he cannot smell ordinary odours. At this time he had only taken four doses of iodide of potassium—fourteen grains in all! As the 2-grain dose had also produced symptoms of iodism it was reduced to one grain three times daily.

25.—He has again had symptoms of iodism, but he has resolutely persevered with his medicine. He can now distinguish a *bitter* taste in solution of quinine and in tincture of assafœtida. He cannot distinguish odours. He can distinguish salt from sugar, but not tea from coffee.

Feb. 1.—He has had no further symptoms of iodism, but he complains that the medicine purges him.

8.—The sense of taste is returning rapidly, but smell is very imperfect. He can now taste distinctly solution of quinine and dilute hydrochloric acid when placed either on the tip or back of the tongue. He can smell the flavour of snuff, but it does not make him sneeze. He can smell better with the left than the right nostril. He says he can smell pepper, but he can discover no odour in valerianate of zinc.

Since he has taken the iodide the pain in the right side of the head has been much better. His bowels are still relaxed by the medicine, acting six or seven times a day. Two minims of liquor opii sedativus were added to each dose of the iodide.

15.—The patient states that on Sunday, the 11th, he found he could taste the flavour of meat, for the first time for twenty weeks. He can smell perfumes and ordinary strong odours. When questioned as to the normal state of his nasal mucous membrane, he says it was always free from any catarrhal condition until he took the iodide, and that, as a rule, he never has to use a pocket-handkerchief. He now complains of certain subjective phenomena connected with the sense of smell. He says that a foul smell comes into his nose like that of a stale tobacco-pipe (he is not a smoker), and that the smell seems to come down from his head, and not up the nose, as ordinary smells do.

23.—He can smell and taste most things. He still complains of a disagreeable odour, like a foul tobacco-pipe, coming on whenever he gets warm from exertion. He has had a slight return of the pain in the head. To take two grains of the iodide three times a day.

29.—Taste good; smell not so good. He could not tell a fishmonger's shop by the smell. The subjective bad smell is not so troublesome. To take a grain of quinine three times a day.

March 20.—He has gone on steadily improving, and is now quite well. He can taste anything and smell most things. The sense of smell is, however, not quite so acute as before the accident.

Remarks.—This case appears to afford some points of both clinical and physiological interest. In the first place it is a rare circumstance to find the senses of taste and smell clearly absent together. It is remarkable that nerves so remote from one another in their central connections as those which preside over these two senses, should be paralysed at the same time, without paralysis of any other nerves. It may be suggested that the defect in taste was simply dependent on the loss of smell, so that the volatile sensations of sapid substances could not be perceived. But in this case, the first thing that the patient could remember to have observed was that he could not *taste* castor-oil, which is nearly without odour; and we ascertained for ourselves that solution of quinine and tincture of assafœtida were not distinguishable from water, nor salt from sugar.

Next, we have the difficult question, What could be the nature of the lesion which would produce paralysis of these two special nerves and of no others?

It is not difficult to understand how a blow on the back of the head might lead to bruising of the olfactory bulbs, lying, as they do, loosely on the floor of the cranium, without any very firm attachments. But this consideration is of little use to us in the case in question, because we cannot imagine that iodide of potassium would restore the function of a nerve which had been lost by severe bruising and consequent disorganisation.

We want to discover an injury which could account for the palsy of both senses, and which we could, at the same time, conceive the iodide of potassium would be efficient to remove. The amount of pain in the head which the patient suffered prior to the administration of the iodide of potassium seemed to point to some intercranial lesion, persisting from the time of the accident, or developing soon after it. Nothing could be more striking than the influence of the iodide of potassium in this case, associated as it was in an interesting manner with the patient's peculiar susceptibility to the influence of the drug. He was severely iodised by two doses of five grains each; then, after an interval of four or five days, he again became iodised on taking two doses of two grains each; and it was only by reducing the dose to one grain three times a day that its exhibition could be borne, and even then, after a short time, it set up irritation of the intestinal mucous membrane, and so purged him.

I have no suggestion which I would presume to offer the

Society by way of a solution of the difficulty which this case presents, but I shall feel very grateful if any member of the Society who has had larger experience than I have had in similar cases, can offer an explanation of it.

It may be worthy of remark that taste returned before smell, and came back more perfectly. The subjective sensations of smell, of which this patient complained, are also curious and interesting. Dr. Hughlings Jackson has several times called attention to such subjective affections of the olfactory sense in connection with epilepsy, and it is not, I believe, uncommon in insane patients.

The description of these sensations of smell as coming down from the head and not ascending through the nostrils, has also been noticed in some of Dr. Jackson's cases.

XL.—*Case of Enteritis, illustrating the dangerous effect which a purgative may have in such cases.* By CHRISTIAN BÄUMLER, M.D. *Read May* 10, 1872.

B. E., aged 22, a German clerk, came under my care on December 3, 1871. He had been in excellent health until the evening of December 1, about 9 o'clock, when he was seized with violent pain in the abdomen. Between 4 and 5 on the afternoon of that day, about three hours after his dinner, he had taken part in some festivity, and had had several glasses of champagne and a good many small mixed biscuits.

The pain in the abdomen had continued all night through. On the following morning the bowels were not open as usually, and he therefore, towards the evening, took some Tr. Rhei, which produced a fluid motion. In the night, however, the pain became worse than it had ever been before, changing from one place to the other. On the following morning, December 3, he repeated the dose of Tr. Rhei, and this was followed by ten or twelve scanty fluid motions. I saw him for the first time at 3 P.M. on that day.

An enquiry into his *previous history* showed that with the exception of an attack of pneumonia and occasional palpitation of the heart when a boy, he had always enjoyed very good health. Even during the whole of the campaign in

France, in which he had taken part as an officer, he had been quite well. His digestion had always been remarkably good, although for some years past he had, at rare intervals, been subject to sudden attacks of a very severe pain all over the abdomen, which generally disappeared after a short time of rest without any further consequences. During the campaign he does not think he had any of these attacks, but on two or three occasions he had to take laudanum for slight colic. He is certain he then never had any diarrhœa. He could not say that those severe pains started from or were fixed to one particular spot; on the contrary, as far as he can recollect, they seemed to involve the whole of the abdomen.

Present state (December 3, at 3 P.M.).—The patient, a fine and strongly-built young man, is lying on his back, his legs slightly drawn up, his face flushed. His tongue is covered with a thick creamy fur. The abdomen is somewhat tympanitic, and no solid fæcal masses can be felt in the region of the descending colon. The tympanites seems to be caused chiefly by distension of the colon. The abdomen is very tender on pressure all over. The thoracic viscera are quite normal; the spleen is not enlarged. Respiration quiet. There is no sickness. Pulse 118, full. T. 102·9° F.

Ordered: Small quantities of iced milk and beef-tea. Ice ad libitum. A linseed poultice to the region of the cœcum. Opii puri ½ gr. at 4 and 9 p.m.

4.—He had a better night, but not much sleep. Since yesterday afternoon there had been one light-coloured fluid motion. The abdomen is not more distended than it had been yesterday, there is less tenderness, and this is more confined to the cœcal region, where pressure produces a gurgling noise. As there was but very little pain no opium had been taken in the morning.

9.45 A.M.—P. 92. T. 100·6°. R. 24.

Ordered: Op. ½ gr. at 10 A.M., 4 P.M., and 6.30 P.M. P. 92. T. 101·1°. R. 22.

There has been a good deal of pain during the day.

Ordered: Op. ½ gr. at 7 and 11 A.M.

5.—Passed a very good night; there is much less pain. The bowels have not moved since the 3rd; the tongue remains just as before.

9.30 A.M.—P. 84. T. 98·4°. Evening.—T. 100·05°.

Ordered: Op. ½ gr. twice to-day.

6.—The night has been very good. The distension of the abdomen has much diminished. Except some tender-

ness on pressure in the cœcal and very slightly also in the left iliac region, nothing abnormal can be made out.

11 A.M.—P. 70. T. 98·25°.

Evening.—T. 98·4°.

Ordered: Op. gr. ¼ at night.

Dec. 7.—2.15 P.M.—P. 76. T. 98·4°.

Evening.—T. 98·6°.

In every respect the same as yesterday.

8.—Passed a good night, and feels very hungry. The abdomen is not now abnormally distended, but the cœcal region is still somewhat tender on pressure. In the colon descendens solid fæces can be felt. The tongue is still much furred.

9.10 A.M.—P. 76. T. 98·24°.

The bowels not having acted since Dec. 3, I first proposed an enema, but as the patient rather objected to it I ordered him Ol. Ricini ℥ss, which was taken in my presence at 9.15 A.M.

Three evacuations followed upon the dose of castor-oil, the last one quite fluid, at 11.30 A.M. Immediately after this considerable pain in the abdomen arose, the appetite disappeared again completely, and febrile symptoms set in.

7 P.M.—T. 101·2°.

Ordered: Op. gr. ¼ at 4 P.M., 11.30 P.M., and 7 A.M.

9.—Had a restless night through pain which still continues. The abdomen is more tender again in the cœcal region, where it is also somewhat more distended. The tongue continues much furred.

9.30 A.M.—P. 80. T. 98·24°.

5.30 P.M.—P. 100. T. 101·7°.

Op. gr. ¼ at 2 P.M., 7 P.M., and 12 A.M.

Since 4 P.M. there had been some headache and general malaise. The pain in the abdomen has much diminished, and the distension has not increased. Bowels have not been open since yesterday; micturition quite free.

10.—Slept until midnight. Soon after having taken the opium powder there arose great pain, which after the passing of flatus subsided. Tongue unchanged. He complains of feeling hot and weak; expression of face not collapsed, skin moist, hands bluish. State of abdomen unaltered.

Ordered: A teaspoonful of brandy every 3 hours. Op. gr. ¼ at 11 A.M., 2 P.M., and 5 P.M.

10.40 A.M.—P. 96. T. 100·05°.

7 P.M.—P. 100. T. 102·02°.

Not much pain.

Dec. 11.—Morning.—P. 92. T. 98·5°.

Ordered: Extr. Bellad. gr. ¼. Tr. Opii ♏ 5. Aquæ ℥ss every 4 hours.

Has passed a very good night.

Evening.—P. 96. T. 100·2°.

Does not feel so exhausted as yesterday and in the early morning, and has now a little appetite.

12.—The night had been quiet; only since 4 A.M. there had been a little pain now and then through flatus. There is no change in the state of the tongue and of the abdomen.

Morning.—P. 88. T. 98·4°.

Evening.—P. 84. T. 101·1°.

Slept a good deal during the day.

13.—Had felt rather hot about 11 last night, and did not sleep soundly until after 4 A.M., when he took Op. gr. ¼. During the day he was free from pain, but on passing water he had felt a sensation as if flatus were moving about the bowels. Athough he now first complained of it, he had felt it for the last two or three days.

Evening.—P. 86. T. 100·2°.

14.—Had a better night. No pain on micturition to-day. *The bowels have not been open since December* 8, and fæces can be felt in the colon descendens.

9.30 A.M.—P. 80. T. 98·4°.

In the afternoon he had a copious semi-solid motion. He now feels very comfortable.

6.30 P.M.—P. 72. T. 97·7°.

15.—Had a very good night, and feels hungry.

9.30 A.M.—P. 76. T. 98·25°.

Evening.—T. 97·9°.

Ordered: 1 egg, toast.
The mixture every 6 hours.

16.—Feels very well. Tongue somewhat cleaner. The abdomen is now more sunk in above the navel. Pressure above the inner part of Poupart's ligament on the right side is still somewhat painful.

9.45 A.M.—P. 68. T. 97·7°.

Evening.—P. 70. T. 98·4°.

Ordered: 2 eggs. Claret ℥iv. Tapioca soup.

17.—During the night he had now and then felt a little uncomfortable in the abdomen.

9.45.—P. 76. T. 97·7°.

Evening.—T. 98·6°.

He got up this morning for the first time to have his bed made.

The bowels moved again spontaneously on the 18th, and from that day every morning except on the 24th, when he felt a little discomfort, while the evening temperature rose to 99·5°. On the previous days the temperature had not exceeded 98·5°, nor the pulse 80. The tongue became almost clean on the 20th. On that day four eggs were allowed, and meat was first given on the 25th. On the 26th he again complained of a little tenderness on pressure in the cœcal region; this pain was situated exactly in the middle between the linea alba and the right spina anterior superior. The appetite, the state of the tongue, pulse, and temperature were, however, not in any way influenced by this increased tenderness, which for a few days rendered it prudent somewhat to restrict the diet.

He continued to remain well and to gain strength, and on January 14, 1872, he went for a week to Brighton, whence he returned much stronger, and in every respect very well. The bowels had lately been somewhat inclined to costiveness, but there was no pain in the abdomen, which on January 24 was found not in the least distended, but pressure on which still produced some slight pain in the old place; however, nothing abnormal could be felt there, although the abdominal walls could be pressed down on the promontorium. He has since remained quite well.

Remarks.—This case belongs to a class of cases which not unfrequently come under our care, and for which, although this is not a very precise diagnosis, the term 'enteritis' may be used as distinguishing a clinical form of disease the further development of which but too often admits of a more precise localisation. After some irregularity in the diet, severe pain in the abdomen, generally accompanied by diarrhœa, and in many cases also by sickness, comes on, leading either in a few days to complete recovery or to local or general peritonitis, the inflammatory process generally taking its origin in the neighbourhood of the cœcum. It may be questioned whether the more serious development of such a case ever occurs without any change having previously been present in that locality. In the case before us the immunity of several other people who had partaken in the same repast, and on the other hand the sudden attacks of pain from which

my patient had previously, at intervals, suffered, point in the direction of some special predisposition on his part. It is, however, certainly remarkable that, supposing some changes did exist in him previously to his present illness he should with impunity have gone through the fatigues and the roughness and irregularity of living by which the campaign in France was necessarily attended.

It is not difficult to see that, with some local predisposition, the taking of food, and especially of easily fermenting food, such as biscuits and champagne, a few hours after a meal and before this latter has become fully digested, may act injuriously by giving rise to increased peristaltic action, and thus pushing the contents of the stomach and intestines forward to places for which they have not yet undergone the necessary preparation. An excess may thus, either by direct irritation of the mucous membrane, or, where some previous changes exist about the cœcum or vermiform process, simply by causing violent peristaltic action, set up an inflammatory process leading to local or general peritonitis.

But however this may have been in the case before us, the point to which I would like to draw the attention of the Society is rather a therapeutic one, namely—the influence which a purgative had in this case after the first inflammatory symptoms had subsided. When I first saw the patient there were signs threatening peritonitis. Whether the case had been aggravated by the repeated doses of Tr. Rhei which the patient had taken of his own accord, cannot be decided. Rest and opium made all the grave symptoms disappear in a few days, pain and distension had subsided, the appetite returned, and a furred state of the tongue and slight tenderness on pressure in the cœcal region were the only abnormal symptoms which remained. The bowels had not acted for four days, and accumulated fæces could distinctly be felt in the descending colon. Under these circumstances an evacuation of the bowels appeared desirable. A simple enema would probably have brought away the accumulated fæces without any danger, but, the patient rather objecting to it, I thought that so mild an aperient as castor-oil is generally considered to be, might be given without any risk, the more so as all febrile symptoms had entirely subsided for more than 60 hours. The patient had not yet taken any solid food.

Immediately after the castor-oil had begun to act all the previous symptoms returned, and once or twice the

patient's condition gave rise to considerable anxiety as slight symptoms of collapse were present. Six days elapsed before the febrile and local symptoms again subsided. After the action of the castor-oil the bowels were not open for six days, and again the question of active interference forcibly presented itself, but this time, following the advice given by Sir Thomas Watson in his lecture on these cases, I waited patiently, and had every reason to be satisfied with the result. The bowels moved by themselves, and a few days afterwards their regular action was re-established.

We must not generalise from the experience of a single case, although the lesson taught by this observation appears evident enough. Yet there may be similar cases in which a purgative may not be followed by any untoward results; but as a discussion of this point is of great practical importance I have thought it useful to bring the case before the Society.

XLI.—*A Case in which a wide Daily Range of Temperature in Rheumatism was associated with Disease of the Heart, Vegetations on the Mitral Valve, and Infarction of the Spleen.* By James Andrew, M.D. *Read May* 24, 1872.

WM. HENRY C., æt 16, admitted into the Victoria Park Hospital, on October 27, died December 6, 1871, under the care of Dr. Andrew.

Note on admission.—Two years ago he had a severe attack of rheumatic fever, and has never been quite well since. Three weeks ago he caught a severe cold, and then had another attack of rheumatism, the articular pains being confined chiefly to the lower extremities. He had also great pain, intermittent in character, in his chest; and shortness of breath, which has been getting worse up to the present date. Complains now of pains in his hip joints. Is pale and thin; expression anxious. Tongue covered, except at the tip and sides, with a dirty brown fur. Appetite poor;

complains of thirst. Bowels confined. Has a slight hacking cough, with scanty frothy white expectoration. The dyspnœa is worst at night. Pulse 120, full, easily compressible. Sleeps fairly well. Urine acid; sp. gr. 1020; a trace of albumen. Lungs normally resonant, except that the area of cardiac dullness is greatly increased. The respiratory murmur is everywhere harsh, and less air enters the right than the left lung. Heart's impulse is heaving: a loud systolic murmur audible over the whole præcardial region, but loudest at the apex and towards the axilla; is also loudly heard at inferior angle of the scapula. Liver and spleen enlarged, especially the latter: increased sense of resistance, with tenderness and irritability of the abdominal muscles in the left iliac fossa. Sudamina on chest and abdomen.

Oct. 27. Evening.—Dyspnœa: can only lie on left side. Pulse 120, slightly irregular. Resp. 52. Temp. 105.

„ 28. Morning.—Passed a good night. Pulse 114. Resp. 32. Temp. 101.
Evening.—Pulse 112. Resp. 36. Temp. 104. Has had a slight attack of diarrhœa. Complains of abdominal pains.

„ 29. Morning.—Pulse 110. Resp. 36. Temp. 101·8.
Evening.—Pulse 114. Resp. 38. Temp. 103·4.

„ 30. Morning.—A bad night from abdominal pain. Pulse 108, slightly irregular. Resp. 36. Temp. 98·4.
Evening.—Pulse 126. Resp. 42. Temp. 103·2.

„ 31. Morning.—Pulse 112. Resp. 38. Temp. 98·8.
Evening.—Pulse 120. Resp. 44. Temp. 105. Is a little deaf to-night.

Nov. 1. Morning.—Pulse 108. Resp. 34. Temp. 98·4.
Evening.—Pulse 114. Resp. 40. Temp. 103.

„ 2. Morning.—Pulse 112. Resp. 34. Temp. 99·2.
Evening.—Pulse 112. Resp. 42. Temp. 103·2.

„ 3. Morning.—Pulse 104. Resp. 32. Temp. 99·4.
Evening.—Pulse 118. Resp. 40. Temp. 103.

„ 4. Morning.—Pulse 108. Resp. 32. Temp. 99·6.
Evening.—Pulse 120. Resp. 38. Temp. 103·6. Expectoration slightly rusty to-day.

„ 5. Morning.—Temp. 100.
Evening.—Temp. 103·4. Enlarged gland in neck.

„ 6. Morning.—Temp. 103.

Nov. 6. Evening.—Temp. 104. Tonsillitis. A few petechiæ on right side of face, on which he generally lies.
„ 7. Morning.—Temp. 103.
Evening.—Temp. 104. Pulse 132. Resp. 30.
„ 8. Morning.—Temp. 100.
Evening.—Temp. 103·6. Pulse 124. Resp. 34. Slight diarrhœa.
„ 9. Morning.—Temp. 98.
Evening.—Temp. 104. Pulse 120. Is very drowsy.
„ 10. Morning.—Temp. 99·6.
Evening.—Temp. 103·8.
„ 11. Morning.—Temp. 100·6.
Evening.—Temp. 104.
„ 12. Morning.—Temp. 100·5.
Evening.—Temp. 102·3.
„ 13. Morning.—Temp. 99·6.
Evening.—Temp. 103·6. Petechiæ on abdomen.
„ 14. Morning.—Temp. 101·6.
Evening.—Temp. 103.
„ 15. Morning.—Temp. 101·4.
Evening.—Temp. 103·2.

„	16.	Morning.—Temp.	101.	Evening.—Temp.		103.
„	17.	„ „	102.	„	„	103.
„	18.	„ „	101.	„	„	103.
„	19.	„ „	101·8.	„	„	103·2
„	20.	„ „	101·6.	„	„	102.
„	21.	„ „	103.	„	„	102·6
„	22.	„ „	101.	„	„	103.
„	23.	Temp. not taken.				
„	24.	Morning.—Temp.	102·6.	„	„	103.
„	25.	„ „	101·4.	„	„	103.
„	26.	„ „	100·6.	„	„	103.
„	27.	„ „	101·6.	„	„	102·8

„ 28. Complains of pain in the joints, particularly in the knees, which are swollen and tender.

		Morning.—Temp.	101.	Evening.—Temp.		104.
„	29.	„ „	102·6.	„	„	103.
„	30.	„ „	100.	„	„	103·6
Dec.	1.	„ „	103.	„	„	101·8
„	2.	„ „	101·6.	„	„	100.
„	3.	„ „	102.	„	„	101·6
„	4.	„ „	101·6.	„	„	101.

„ 5. Temp. not taken. Evng.—Temp. 97·6. Resp. 48.

Dec. 6. Twelve, noon. Temp. 96·1. Pulse imperceptible at wrist. Dyspnœa urgent. Extremities cold.

4.30. P.M. Temp. 94. Died shortly afterwards.

General observations.—The spleen increased considerably in size during the first two or three weeks, but afterwards gradually decreased, the area of spleen dullness during the last few days of his life being only slightly larger than usual. The blood was examined microscopically on several occasions: no excess of white corpuscles was detected, but the red discs appeared paler than usual; did not form rolls, and were irregular in size and shape, the margins of many of them being crenated. The prominent clinical symptoms were the dyspnœa, unattended by any sufficient physical signs of change in the lungs or pleura; the extreme anæmia and muscular weakness; the constant drowsiness; and the absence of any form of delirium or of rigors. Also, the widest diurnal range of temperature took place when the spleen was at the largest.

Post-mortem examination.—The free edge and auricular surface of the cusps of the mitral valve covered by large, soft, reddish-brown vegetations. The spleen slightly larger than usual, contained numerous small infarctions, in various stages, some seemingly recent, others mere bands of cicatrix tissue; no trace of softening in any of them. One or two small infarctions in the kidneys, none in the liver. Pleuræ healthy. Lungs, no change, except slight congestion posteriorly. Intestines healthy throughout; no trace of any typhoid change.

XLII.—*Left Hemiplegia, with convulsion of Paralysed Parts, and Impairment of Sensation; Vomiting; followed after a time by Coma. Tumour occupying entire Right Occipital Lobe, with small Tumour on upper part of second ascending Parietal Convolution.* By W. H. Broadbent, M.D. *Read May* 24, 1872.

JOHN H., æt. 65, bootmaker, was admitted into St. Mary's Hospital on October 14, 1871. He had been in good health up to October 7, when he woke his wife at 4 A.M., complaining of feeling sick, and of coldness and numbness in the left arm, which, he says, was convulsed. Next morning it was heavy and weak, and he was unable to use it in his work. On Oct. 10 he had pain in the head, and when walking suddenly staggered and would have fallen, but was caught; was not unconscious, but later in the day wandered in his mind. He went to bed, and there remained, complaining of his head. On the 12th, twitching movements came on in the left arm, and, to a less degree, in the eye. On the 14th there were violent convulsive movements in the entire left half of the body, and he was brought to the hospital at 2 P.M., where the movements continued from 2 P.M. till 4 or 5 P.M., when they gradually ceased. He was also violently sick; never unconscious.

After the cessation of the movements, left hemiplegia was found to be present. In the face the distortion and other characters were very well marked, but the eyelids acted together, and he could wink with either eye. Pupils contracted. He lay habitually with the face and eyes turned to the right, but was able to look to the left. The tongue deviated to the left, and was covered with a thick yellowish-white fur. Left arm weak, but he could move it feebly in all directions, and guide it vaguely. Left leg weak, moved readily in bed, but supported him badly when he tried to stand; he staggered also, and felt giddy. Sensation greatly diminished over left face, body, and limbs. Bowels confined, breath offensive, albumen in urine; no morbus cordis. T. 98·6°. Ophthalmoscopic examination impracticable on account of a peculiar condition of lens, which showed radiating cleavage planes. This did not, however, interfere much with vision.

For a few days after admission the convulsive movements in the left limbs came on at intervals, and especially if he lay on the left side. He also had pain in the forearm when the limb was moved, and was subject to what he called nervous shocks, which began in the palm of the left hand and extended up the limb, causing him to cry out and toss about. These shocks prevented him from sleeping. He vomited much for the first two days and retched frequently on the next. On the 23rd he had sensations which started suddenly in the left foot, spread up the leg, down the arm, and to the head, on reaching which the muscles of the left limbs were contracted, and he seemed to have much pain, and talked incoherently. He continued to complain of headache, varying in intensity and in seat; of sounds in the back of the head. His mind, after the first few days, was quite clear, and his conversation remarkably intelligent. The pain in the limbs ceased; he recovered a considerable degree of power; the appetite was good, and the bowels were regular. Improvement continued to the 8th November. He was taking iodide of potassium, and faradaic electricity was applied to the affected limbs. On Nov. 10th he had pain in the right forehead, brow, and right eye, and he did not answer readily. The torpor increased, and on the 13th he had 'a fit,' which lasted for some minutes; after which he gradually became comatose, passed his urine and fæces involuntarily, &c. On the 15th he was lying on his back, breathing stertorously. At almost regular intervals the obstruction to the passage of air in the pharynx gradually increased and became complete, respiratory movements going on, but no air entering or leaving the chest, till, after a time, the increasing energy of the respiratory efforts overcame the resistance, and an inspiration was effected with a loud burst, and for a time the respirations were deep and noisy, then becoming again feeble. When he was turned upon his side the stertor at once ceased, and on being shaken or spoken to loudly signs of consciousness of these powerful impressions were elicited. The pupils were equal and small, but contracted further on exposure to light.

Blistering fluid was applied to the forehead. He was freely supplied with fluid nourishment, which he swallowed readily. He gradually came out of the coma, and became quite conscious and rational, but remained extremely feeble, and continued to pass his evacuations in bed. The paralysis of the left arm was almost complete. The articulation

became impaired; and though he answered questions properly and so as to be understood, he talked much at times, appeared to be wandering, and was unintelligible. He died on Nov. 30.

On post-mortem examination the thoracic and abdominal organs were found generally healthy. In the head the dura mater was more adherent to the bones than usual. On removing this, the convolutions of the right hemisphere were seen to be much flattened and compressed. In the second or posterior ascending parietal convolution (the convolution forming the posterior wall of the sulcus of Rolando), at about the junction of the upper third with the lower two-thirds of its length was a soft, dark-coloured patch, which, on section, was found to be the surface of a tumour, about the size of a cob nut, embedded in and expanding this part of the convolution. Apparently, hæmorrhage had taken place into the substance of the tumour. Another large tumour, about the size of a small orange, but flattened from side to side, occupied the entire occipital lobe of this hemisphere, but did not present on the surface at any point. Its margin was well defined, but it was not encapsuled; it was firm in consistence and of a yellow colour, dotted with red, except in the centre, where it had a gelatinous appearance. Anteriorly it came as far forward as the convexity of the descending cornu of the lateral ventricle, but was separated from the central cavity and ganglia by unaltered brain substance. There was no softening around either of the tumours, and the rest of the brain was healthy. There was no great amount of fluid in the ventricles.

The diagnosis in this case was conjecturally cerebral tumour, but not even a guess was made as to the size and situation of the tumour, except that it was in the right hemisphere. Hæmorrhage and embolism seemed to be excluded by the mode of attack and subsequent history, but the absence of symptoms before the occurrence of the hemiplegia with unilateral convulsion, and the impossibility of obtaining ophthalmoscopic evidence, made a certain reserve necessary in concluding that there was tumour. The relative share of the two growths in the production of the symptoms is an interesting subject of speculation. The situation of a tumour or other foreign body in the brain is often a consideration of greater importance than the size, and I am disposed to attribute the hemiplegia with convulsion of the paralysed limbs (or rather the convulsion with

paralysis) to the smaller of the tumours, viz. that in the posrior ascending parietal gyrus; the gradually deepening coma to the larger growth in the occipital lobe. Convulsion, as Dr. Hughlings Jackson has pointed out, is due to irregular discharge of force by unstable nerve cells, and whatever may be the seat and cause of the instability in general convulsions, unilateral convulsion appears usually, if not always, to have its starting-point in the hemispherical grey matter. My own limited personal experience would lead me to add, especially, the grey matter of the parietal region. The small tumour projecting from the surface of the convolution, displacing the cortical substance and stretching or destroying the pia mater, would be in a position to interfere with the nutrition of the neighbouring cells and induce instability, while the occipital tumour nowhere reached the surface; and although it compressed and invaded the grey substance of the sulci it would cut off the cells here situate from the central ganglia by more extensive destruction of the white fibres.

The size of the tumours is worthy of remark, when considered in relation to the short duration of the symptoms (seven weeks), as are also the recovery from profound coma after the application of blistering fluid to the forehead, and the cessation of stertor when the patient was turned on his side, as recommended by Dr. Bowles, of Folkestone. The two last are practical points of some importance.

XLIII.—*Case of Gastrotomy.* By Thomas Smith. *Read May* 24, 1872.

W. B., æt. 38, was admitted into St. Bartholomew's Hospital in February 1872, under Dr. Black's care. The patient was extremely emaciated, he had suffered from an increasing difficulty in swallowing during eight months. Fourteen days before admission he had ceased to be able to swallow solids, and for a week he had taken nothing (as he said). Any fluid he may attempt to swallow quickly regurgitates. He has never had any pain or uneasiness about his throat except from the lodgment of food. He had not brought up at any time either blood or pus; he had never

swallowed any caustic fluid. There was no swelling to be felt in the throat, no tenderness on pressure, and no enlargement of the lymphatic glands.

Several attempts were made to pass a bougie; it was always arrested when about ten inches from the front teeth; on withdrawal it was not tinged with either blood or discharge of any kind, nor were the sputa otherwise than natural afterwards. There were no signs of disease within the thorax.

A consultation was held, and it was determined to make persevering attempts to dilate the stricture and to administer nutrient enemata meantime.

For some days this plan was followed out, and occasionally he seemed somewhat benefited by the treatment, though nothing but a fine steel probe-pointed stilet could be passed through the stricture. During this time the patient gradually lost ground, he was troubled with a paroxysmal cough, and expectorated largely a transparent glairy mucus.

On March 21, 1872, I opened the stomach through an oblique incision on the left side, an inch from and parallel to the lower margin of the ribs. This incision began near the middle line and ended at the left linia semilunaris. The rectus muscle, the internal mammary artery, and a few fibres of the transvasalis were divided; the stomach was found empty, contracted, and lying high up under the diaphragm; it was opened on its anterior aspect, towards the pyloric end, and attached by several wire sutures to the margins of the wound in the skin; the external wound was closed above and below the point to which the stomach was attached with wire sutures and a hare-lip pin.

A large india-rubber tube, three inches long, closed at the end and having a lateral opening, attached to a shield of india-rubber, was put into the stomach, the shield being fixed to the suface of the belly by strapping: the tube was closed externally with a cork, cotton-wool was placed on the abdomen, and a flannel belt with buckles was firmly applied. There was a good deal of dragging on the sutures, so that the abdominal wall was deeply retracted. No blood or fluid of any kind escaped into the peritoneal cavity during the operation.

At the time of the operation a little warm milk with brandy was poured into the stomach, and four hours afterwards half-a-pint of milk with an egg was given: throughout the food was introduced by means of a small funnel inserted within the india-rubber tube.

The accompanying table will show the quantity and kind of food that was taken, and how it was administered.

On the evening of the operation the pulse was 55, small and feeble; and there was pain at the pit of the stomach. No sickness.

Second day.—No pain; no sickness. Pulse 76. Tongue moist; and he had slept well.

Third day.—A good night; no pain. Pulse 100. Temperature, 96·6°. Towards evening he had a little pain, which a morphia injection relieved.

Fourth day.—A good night; no pain. Doing well in all respects.

Fifth day.—A good night. Bowels open; a solid light-coloured motion. Tongue dry. Pulse 120, feeble; has a very troublesome cough, which causes pain and makes some fluid regurgitate by the side of the tube.

Sixth day.—Slept well. Pulse 120; temperature in the morning, 98·4°. Coughs up frothy mucus as before the operation; has no tenderness about the abdomen. Towards evening the pulse became 136. Temperature in the mouth, 100·8°; in the stomach, 102·6°.

Seventh day.—Slept well. Temperature in the mouth, 99·6°; in the stomach, 100·6°. Pulse 120; very feeble. Cough continues; no pain.

Eighth day.—Early this morning was seized with severe pain; the cough being very troublesome; and he died at 11 A.M., just one week after the operation.

Date	Milk	Essence of Beef	Eggs	Brandy	Method of Administration
March					
21st	℥xij		ij	℥ijss	Stomach
					Rectum
22nd	℥xiij	℥iv	iij	℥i	Stomach
	℥iv	℥x	i	℥ij	Rectum
23rd	℥viij	℥xiv	iij	0	Stomach
	℥viij	℥xx	ij	℥i	Rectum
24th	℥xi	℥vij	iij	0	Stomach
	℥xx	℥xx	ij	0	Rectum
25th	℥viij	℥vj	iij	℥ijss	Stomach
	℥xx	℥xx	ij	0	Rectum
26th	℥xij	℥viij	iv	℥ijss	Stomach
	℥xx	℥xx	ij	0	Rectum
27th	viij	℥vj	iij	℥v	Stomach
	0	0	0	0	Rectum
28th	℥ij	℥ij	i	℥ij	Stomach
	℥iij	℥ij	i	0	Rectum

Post-mortem examination twenty-four hours after death.

Body much emaciated. Heart and pericardium natural. Lungs healthy, except the apex of the right, where a small old cheesy tubercle was found, and where there were some old pleuritic adhesions. Recent adhesions were found between the left lung and the diaphragm. The anterior abdominal wall was remarkably retracted; on opening the peritoneum a thin layer of recent lymph was found spread over the entire surface of both the visceral and parietal layers. The entire membrane was in a state of diffuse inflammation, the focus of which was in the neighbourhood of the stomach, where the adhesion of the two peritoneal surfaces was complete, so as entirely to prevent the escape of any of the wound secretions into the serous cavity.

The liver, spleen and kidneys were healthy.

The œsophagus (rather above the point where the trachea bifurcates) was completely obstructed by a ring of epithelial cancer, about an inch and a half deep, smooth on the outside, but superficially ulcerated on the mucous surface. The stricture of the tube was nearly complete; water would pass through only drop by drop; the œsophagus above the stricture was only slightly dilated, and elsewhere was quite healthy. The pneumogastric nerves were involved in the cancerous deposits passing through its substance. On the upper curve of the stomach, at the pyloric end, was a small nodule of epithelial cancer; no cancerous deposits were found elsewhere.

The stomach, as seen in the specimen, is firmly united with the margins of the skin wound; and the skin wound, above and below its connection with the stomach, has healed; the sutures remain *in situ.*

The position of the external wound may be best appreciated by observing its relation to the umbilicus and to the cartilages of the ribs, both of which are preserved in the specimen.

Remarks.—This case adds one more fatality to those already recorded, in which the stomach has been opened for the introduction of food.

The peritonitis which was the immediate cause of death, came on five days after the operation, and was preceded by a distressing cough. It never gave rise to any severe symptoms during life, and, with the exception of a rise in the temperature, there was nothing during life to lead to the belief that the patient suffered from this complication.

The operation was done under circumstances as favourable

to recovery as one is ever likely to meet with again. The patient, though feeble, was not thoroughly prostrate: there was nothing in the local disease of the œsophagus to have caused his death when it occurred, or even to have contributed to the fatal issue after the operation had been performed. There was no difficulty in the performance of the operation; no failure in the process of union afterwards; no hindrance to the proper administration of a due supply of food; yet the patient died, as has everyone who has been subjected to gastrotomy for stricture of the œsophagus.

In Mr. Durham's paper in Holmes's 'System of Surgery' nine cases of gastrotomy are recorded, the intervals which elapsed between the operation and the patient's death being respectively, 15, 16, 32, 36, 44, 58 hours, 3 days, 10 days, 12 days. The patient whose case is now under consideration lived seven days after the operation.

With regard to the plan of operation pursued in this case, the usual line of incision, that of the left linea semilunaris, was not followed. The patient had a very long thorax with very sloping ribs, so that the highest part of the linea semilunaris was considerably below the stomach, as well as being nearest to the least moveable part of that organ—viz., the œsophageal end; while the incision adopted had the advantage of being near to the anterior wall of the stomach, so that the organ could be drawn to the wound easily, yet it was no doubt some disadvantage that the epigastric artery and rectus muscle were by it divided. No inconvenience resulted from the opening being towards the pyloric end of the stomach. Eight ounces of fluid could be introduced at one time without regurgitation.

The india-rubber tube which was inserted at the time of the operation was found very serviceable, as it allowed the abdomen to be covered with a flannel belt fastened with straps and buckles. This compression of the belly diminished the drag on the stomach, and to some extent limited the movement of the abdominal wall in respiration. The tube caused no irritation of either the margins of the wound or the gastric mucous membrane.

It may be observed that none of the patients submitted to gastrotomy have been troubled subsequently by vomiting. Indeed, from the nature of the disease for which the operation is performed, vomiting is impossible; and I doubt if the operation itself does not to a great extent interfere with the act of retching.

The occurrence of cough is a very serious complication after gastrotomy; it drags on the stomach and tends to separate it from its attachment to the abdominal walls, stretching and perhaps rending the recent adhesions. In the case under consideration I believe it largely contributed to the fatal issue by setting up peritonitis. The cough, which in this case had been very troublesome before the operation, entirely ceased for four days afterwards. It set in again on the fifth day, and gave rise to great discomfort. It was probably due to the implication of the pneumogastric nerves in the cancerous deposit around the œsophagus.

It was suggested by one of my colleagues that the patient should masticate and insalivate his food before its introduction into the stomach, and this plan was tried on more than one occasion; but the proceeding excited so much disgust in the patient's mind, and such a sensation of nausea, that he declined to follow it up.

In reviewing the cause of death after gastrotomy for stricture of the œsophagus, in ten cases (those in Mr. Durham's table and my own case) it will be observed that death was attributed to exhaustion without peritonitis in five cases, to peritonitis in four cases, to broncho-pneumonia in one case.

It is, however, a significant fact that in none of the five cases first named was life prolonged more than fifty-eight hours after the operation; while in every case but one, where the patient survived three days and upwards, peritonitis was found after death.

Mr. Durham sums up his remarks with the following conclusion, with which I entirely agree:—

'It is doubtful whether life has been prolonged by the operation in any case of gastrotomy performed on account of disease.'

In conclusion, I venture to express my opinion that with our present knowledge of the dangers of gastrotomy, it is right that they should not be incurred when death is at all imminent from any other cause than such as can be relieved by the operation.

XLIV.—*Two Cases of Gastrotomy.* By William Mac Cormac. *Read May* 26, 1872.

THE following is a brief history of two cases in which gastrotomy was recently performed in St. Thomas's Hospital.

Case I.

Henry S., a bookbinder, æt. 40, was admitted to the hospital, March 4, 1872, under Dr. Clapton's care.

Up till his present illness he had enjoyed good health; his family history was satisfactory. He had not had syphilis, and was of temperate habits.

He stated that one day, about twelve months before admission, his food appeared to stick in his throat. This induced retching. He vomited the food, and felt easier afterwards. This difficulty continued for a day or two, and then subsided, but recurred in a short time.

Until Christmas, he suffered occasionally in this way; then he found himself getting worse, and the difficulty of swallowing steadily increased. He also lost much flesh.

On admission, he was observed to be emaciated and weak. He could swallow no solid food. What he did try to swallow, always appeared to stick opposite the fourth costal cartilages. The effort invariably induced violent retching, and the food was returned.

He could swallow fluids in small quantities, but with difficulty. It gave him pain, which subsided when the parts were at rest.

There had never been any bleeding, or purulent discharge. The heart and lung sounds were normal. Air entered both sides of the chest equally well. There was tenderness in the epigastrium, but no tumour was to be felt anywhere.

After admission, the difficulty of swallowing greatly increased. Many attempts were unavailingly made to pass a catheter into the stomach.

Food carried down to the stricture by a tube seemed in part to pass, and more readily than if swallowed by the patient. The quantity, however, became less and less, and on the 17th and 18th, nothing whatever appeared to pass the stricture, while the cough and retching induced by the

attempt to swallow, became very painful and distressing. Nutritive enemata were administered all this time.

I saw the patient for the first time on the morning of the 19th, in consultation with Dr. Clapton. The man was very weak and exhausted from want of food, and from the cough and retching.

It was determined to open the stomach to procure the means of feeding him. I operated about 10 o'clock, without chloroform. The skin was frozen by the ether spray.

An oblique incision, nearly four inches in length, was first made through the skin, commencing over the outer edge of the rectus muscle, and was prolonged, downward and outward, half-an-inch below the level of the 8th, 9th, and 10th costal cartilages.

The muscles were cut through with some little difficulty, owing to their spasmodic contraction, and the peritoneum, on being exposed, was divided throughout the entire length of the wound on a director.

The left lobe of the liver was first seen, and then a piece of omentum. On pulling the latter downward, the stomach, which was contracted and drawn very much backward and upward, was reached, and two sutures having been passed, an opening was made in it after all bleeding had stopped. The edges of the stomach were then carefully adjusted, and attached by suture to the skin, while the extremities of the parietal wound were also closed by sutures. An india-rubber tube was introduced and left in the stomach.

The patient bore the operation well. He was removed to bed, and the nutrient enemata directed to be continued.

He passed the day comfortably; the retching ceased; the temperature varied from 99° to 102°, and the pulse from 90 to 130. In the afternoon, the first food was introduced into the stomach, a mixture of brandy, beef-tea, made arrow-root, and five grains of pepsine.

Only a small portion could be passed in. A glass funnel was adjusted to the tube for the purpose, and the fluid allowed to gravitate downwards.

The patient died early on the morning of the 21st, forty-five hours after the operation.

Without troubling the Society with the minute details of the case, which were all accurately recorded, I may say that the man simply got weaker and weaker, and died, just as he might have done had no operation been performed. The operation did not appear to hasten his end, while it was

followed by the complete cessation of the retching and cough, which had previously occasioned much distress.

After death, the stomach and parietal wounds were found glued together, and adherent throughout their circumference by recent lymph.

There was no trace of lymph or serum in the abdominal cavity, nor any injection of the intestinal coils.

The opening in the stomach had been made near the greater curvature and towards the cardiac end. In the œsophagus, three inches above its extremity, was found a deposit of epithelial cancer, surrounding the tube for an inch and a half in length.

The pleura contained about half-a-pint of serum in each cavity, and a layer of recent lymph covered the lung posteriorly, near the seat of the disease.

In the right lung there was a gangrenous abscess cavity, the size of a hen's egg, situated in the immediate neighbourhood of the disease. There was an opening in the œsophagus opposite this, but a direct communication could not be traced between the two, though water was injected. Such a communication, however, probably existed.

The lungs generally were soft, friable, contained little air, and emitted a most offensive smell.

No disease was found in any of the abdominal viscera.

Case II.

The second case was one the medical history of which is furnished, as was that of the other, by Dr. Pollard, Medical Registrar to St. Thomas's Hospital.

Richard L., a labourer, 57 years of age, was admitted to the hospital, under the care of Dr. Murchison, May 2, 1872. He gave a history of frequent sore throat and cold, but not of syphilis.

The family history was good.

Three weeks before Christmas, while eating hurriedly, a piece of beef-steak stuck in his throat. Ever after he experienced a difficulty in swallowing, first semi-solid food, and latterly even liquids. He never observed any discharge of pus or blood. He has rapidly lost weight,—3½ stones since Christmas.

On admission, a somewhat hard tender swelling could be felt behind the thyroid cartilage. A small catheter, when introduced by the mouth, reaches this point, but does not enter the stricture. For the past week his attempts to

swallow even small quantities of fluid have been unsuccessful. On the 5th and 6th, however, he took some beef-tea and milk, but the next day was unable to swallow anything, and the attempt always induced violent fits of coughing and retching.

On May 7th, Mr. Clark performed gastrotomy, by an operation similar in its steps to that which I had practised previously. Chloroform was not given, but the skin was frozen. An incision was made along the tips of the 8th, 9th, and 10th costal cartilages. This incision was three inches long, and encroached partly on the rectus muscle. The peritoneal wound was at first one inch and a half long. It was subsequently enlarged.

The stomach was lying quite above the wound, and overlapped by the liver. It was, after some trouble, drawn down to the abdominal wound, transfixed, and then attached by sutures to the superficial structures.

The patient, after the operation, was weak, and suffered considerably from shock; the temperature fell 2½° (96·6°).

Feeding by the artificial opening was commenced the following day, thirty hours after the operation. The patient was then comfortable and free from pain, but very weak.

The artificial feeding was accomplished without difficulty. Every two hours nourishment was given, generally milk with pancreatic emulsion and the yelk of an egg.

An india-rubber tube was introduced into the opening, and a glass funnel at the end served to receive the fluids, which thus gravitated into the stomach without difficulty.

The character of the motions from the bowels was natural.

Little change in his condition took place for the next two days. He was regularly fed through the wound every two hours. Three days after the operation, marked evidences of bronchitis supervened, with considerable dyspnœa, offensive breath, and pain in the left side.

The appearance of the wound continued healthy till towards the close, when the adhesions yielded a little at one point. The patient died on May 13, six clear days after the operation.

He had felt, he said, no pain anywhere, except towards the end of life, when some was complained of by him in the left side of the chest. The vomiting and retching ceased completely after the operation.

He did not suffer from hunger, and his strength, as indi-

cated by the voice and pulse, seemed to improve when food was put into the stomach. He replied, in answer to a question, that he was very glad he had had the operation performed, as he had felt easy ever since.

I have not obtained from Dr. Payne a complete account of the post-mortem appearances, but the stomach and parietal wound had in part given way. There was peritonitis, limited, however, to the neighbourhood of the wound and upper surface of the liver.

In this case the cancerous deposit was more extensive than in the other. It occupied 3½ inches of the œsophagus, terminating superiorly opposite the first ring of the trachea. During the removal of the parts the œsophageal wall yielded partially at the lower border of the growth, and there appeared to have been an ulcerative opening into the trachea close to its bifurcation.

In both the specimens the microscopical appearances show extremely irregularly shaped cells with large nuclei, giving the appearance of abortive epithelial cells. Here and there were masses of pavement epithelium and a few concentric, the so called birds' nests, whorls.

Remarks.—The remarkable success which has attended the operation of gastrotomy for the removal of foreign bodies from the stomach, and the knowledge that persons may survive for protracted periods with a fistulous opening into this viscus, have induced surgeons to try to prolong life in cases of œsophageal obstruction by making an artificial opening for the introduction of food.

The obstruction in both the cases of which I have related some particulars to-night was dependent on epithelial cancer. It is in cases of this kind that the introduction of bougies always does harm in place of good.

A painful death from starvation, which it is difficult for the observer to contemplate with indifference, is the only prospect before us, and if an operation offer a reasonable chance of prolonging life, it is, I conceive, our duty to attempt it. Besides, colotomy is often performed for cancerous disease of the rectum with satisfactory results.

Both these cases presented prominently the fact that the operation afforded great relief to the painful throat symptoms.

In my own case the comparative ease enjoyed by the patient induced both he himself and his wife, who had been watching him, to consider his recovery assured, and he ex-

pressed to me his great thankfulness for obtaining such great relief.

In Mr. Clark's case the relief afforded apparently by the operation was as marked as in my own.

Of course this alone would not, perhaps, justify so capital an operation, but it is not apparent why, in a suitable case, life should not be considerably lengthened if the operation prove successful, while the patient obtains the same freedom from pain that he does after colotomy.

The risk of peritonitis does not appear to be pressing, comparatively speaking. In the majority of the recorded cases it has been shown to be absent.

The exhaustion caused by the protracted deficiency of nourishment seems more likely to prove dangerous and prevent a successful termination.

In cases of œsophageal stricture progressively narrowing and not admitting of dilatation by bougies, gastrotomy, if performed early enough, might, I think, succeed as an operation.

In both the cases which I have detailed, the disease had so far invaded the tissues as to cause an ulcerated communication with the lung and trachea. The operation was therefore too late.

In cancerous disease life can at most only be prolonged for a time, but if the results observed in these two instances be generally found true, much ease and comfort may be procured by the operation.

To traumatic and other non-cancerous strictures, otherwise intractable, the operation described appears peculiarly applicable.

Œsophagotomy may doubtless in some instances be performed, but the difficulties of the operation are very great, and the majority of strictures of the œsophagus are placed too low to admit of it.

I think it a matter of some importance to make a free abdominal incision. Through a limited one the stomach is difficult to find, and still more is it difficult to draw it down to the external wound. The danger of a large wound is trifling compared with that liable to be caused by the disturbance of the parts if difficulty be experienced in discovering the whereabouts of the stomach.

On another occasion, however, I should employ an anæsthetic. It was to avoid the risk of vomiting that it was in these cases omitted; but that risk, under the circumstances, is probably not great; the patient might be spared much

suffering, while the performance of the operation itself would be rendered easier.

Whether gastrotomy for obstruction of the œsophagus should be performed at all or not may still be considered an open question. I do not think we are quite in a position as yet to settle it. Further trials must be made, and in an earlier stage of the disease. I would not myself hesitate again to perform it in a suitable case.

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LONDON: PRINTED BY
SPOTTISWOODE AND CO., NEW-STREET SQUARE
AND PARLIAMENT STREET

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